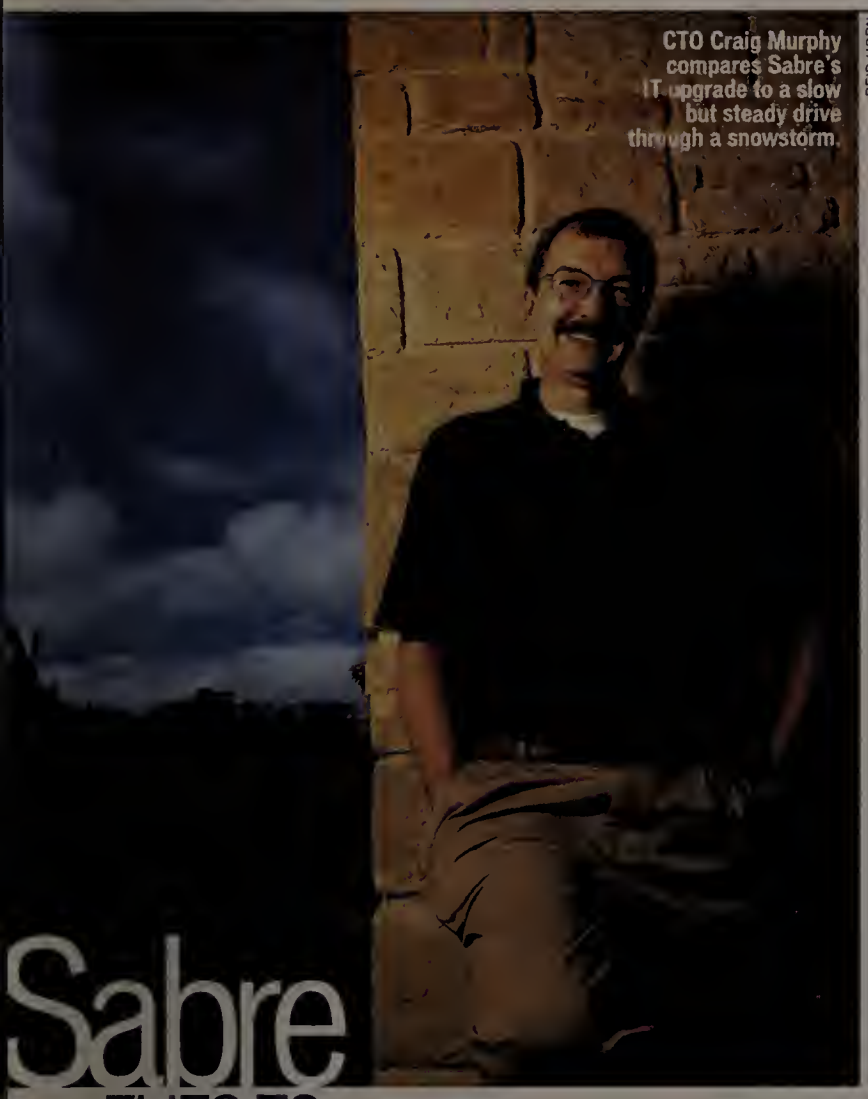
Taking outsourced functions back is tricky. Here's how. Page 33 Full coverage of Mobile & Wireless World. Page 13

COMPUTERWORLD

THE VOICE OF IT MANAGEMENT ▪ WWW.COMPUTERWORLD.COM

MAY 31, 2004 ▪ VOL. 38 ▪ NO. 22 ▪ $5/COPY



REID HORN

CTO Craig Murphy compares Sabre's IT upgrade to a slow but steady drive through a snowstorm.

Sabre FLIES TO Open Systems

Sabre, the first real-time business application, became the poster child of IT for "competitive advantage" in the 1980s. Now Gary H. Anthes reports on an overhaul of the mainframe shopping engine in favor of commodity servers and Linux. **Page 21**

NEWSPAPER

Software Licensing Emerges as Grid Obstacle

Users say accounting issues, rather than tech challenges, are the problem

BY PATRICK THIBODEAU
PHILADELPHIA

Many grid computing users are finding that the key challenge they're facing isn't implementing the technology. It's figuring out how to pay for it.

Software licensing contracts, especially those with small software vendors, are generally unsuited to grid environments, which can quickly scale up or down depending on demand, said users at the Grid Today 2004 conference here last week.

"One of the biggest problems of the grid is accounting," said John Hurley, director of grid evaluation and implementation at The Boeing Co. in Chicago. "How do you pay for things? How do you set charges?"

Hurley said he believes that software vendors are starting to address grid licensing issues, but it will take time to resolve them. The grid environment "is new for them also," he noted.

ONLINE
Early adopters see grid's potential:
QuickLink 47212

If a software license is based on CPU usage, for example, costs can quickly escalate as more processors are called into service in a grid environment. A grid is an installation that taps the computing power of a large number of PCs or servers to run compute-intensive applications.

Software vendors "cannot license their software around a true on-demand compute model," said Chris Bennett, group leader at Acxiom Corp. The Little Rock, Ark.-based data integration company is

Grid, page 49

Microsoft Buys Users Time With Extension

Updated product support policy calls for 10-year minimum

BY CAROL SLIWA
SAN DIEGO

User reaction was generally upbeat after Microsoft Corp. announced last week that it plans to extend the support phase for business and developer products to a minimum of 10 years.

The support policy, which takes effect Tuesday, updates

Microsoft, page 15

THE ASSOCIATED PRESS

IT money paid for some intelligence personnel at the Abu Ghraib prison in Iraq.

Army's Use of IT Contract to Hire Interrogators Questioned

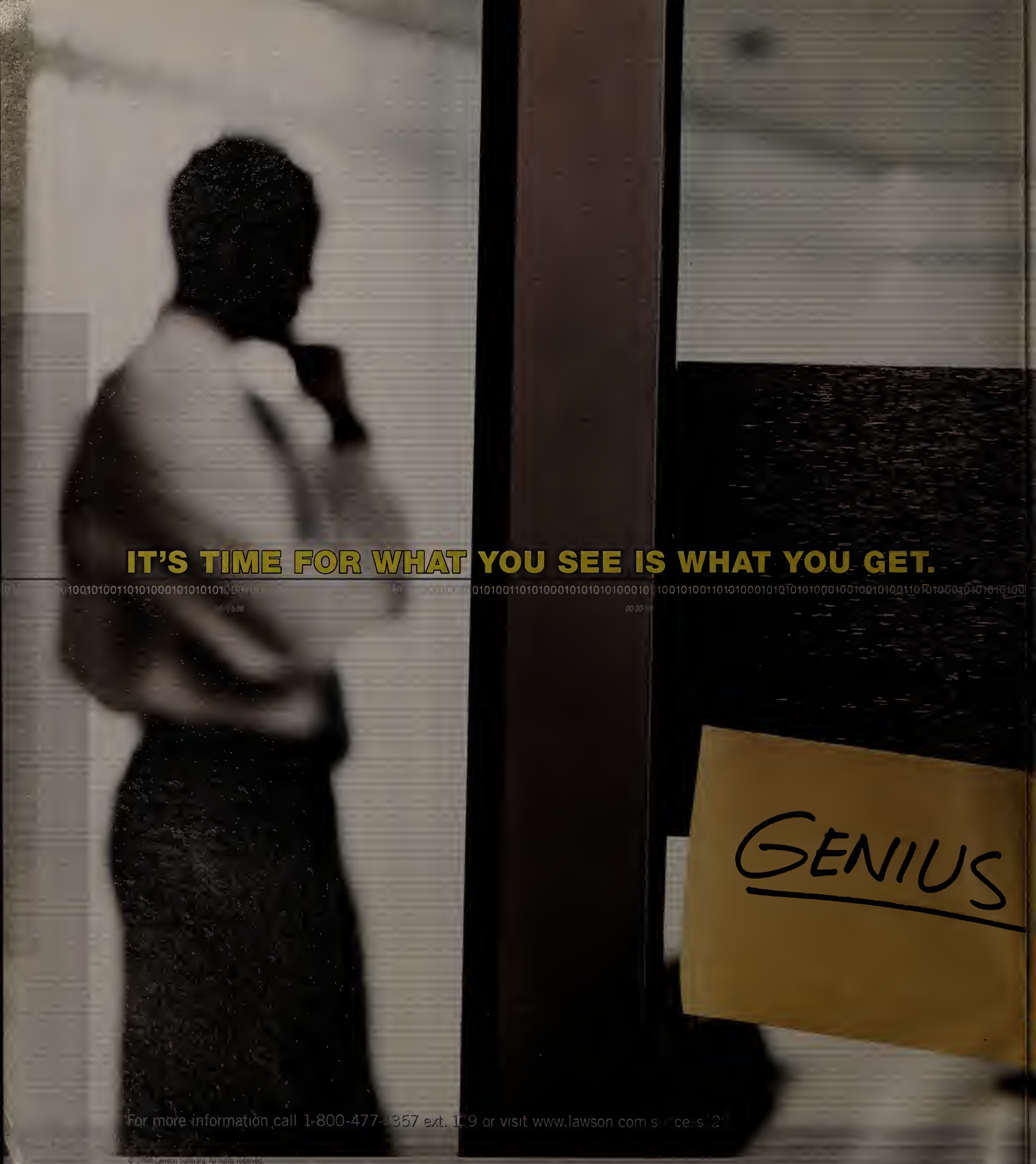
Interior Department audits $500M blanket agreement with CACI

BY DAN VERTON

The U.S. Department of the Interior's inspector general is reviewing the contracting procedures that allowed the U.S. Army to use an IT services contract to hire civilian interrogators for work in Iraqi locations, including the now-infamous Abu Ghraib prison near Baghdad.

The contract in question is a $500 million blanket purchase agreement for IT services administered by the Interior Department on behalf of the Army. The deal was originally awarded in 1998 to

Army, page 49


IT'S TIME FOR WHAT YOU SEE IS WHAT YOU GET.
GENIUS
For more information call 1-800-477-
357 ext. 1
9 or visit www.lawson com s
ce s 2
Lawson Software. All rights reserved.

When it comes to business application software many commitments aren't being honored. Installation is often neither on time, nor on budget and much of the software goes underutilized. The market is asking for something different. That's why Lawson is leading the way by providing software and services that put time on your side. Our applications will do what we say they will. Our upgrades will mean measurable improvements. And our ability to maximize your time will help keep you competitive. After all, seeing is believing.

LAWSON

It's Time.

Microsoft
Your potential. Our passion.

Enterprise-grade IM. How will it make you feel?

Running Microsoft® Office Live Communications Server means instant messaging is now encrypted and more secure. All activity can be logged and archived. And it easily integrates with your existing Microsoft programs and IT infrastructure. Now, IT is more in control, users are more productive, and management breathes an audible sigh of relief. Way to go, hero.

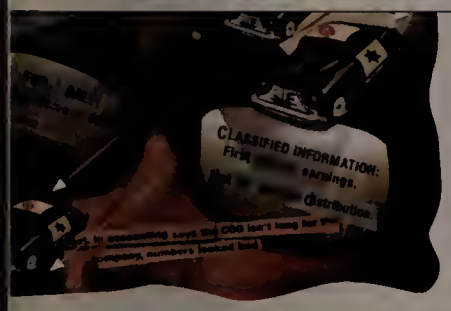
Experience it for yourself at microsoft.com/livecomm/trial

Microsoft Office
Live Communications Server 2003

© 2004 Microsoft Corporation. All rights reserved. Microsoft, the Office logo, and "Your potential. Our passion." are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

CONTENTS

05.31.04



Information Highway Patrol
In the Technology section: Liability and productivity concerns have increased interest in products that monitor and enforce employees' compliance with e-mail and Internet acceptable-use policies. **Page 28**

Killing Time on IT Projects
In the Management section: Time is the bane of project managers. Here are some tips to help keep you and your project team from wasting it. **Page 36**

NEWS

6 **EMC launches** an entry-level disk array, but the device can't be managed by its ControlCenter tools.

7 **Ingres database users** are heartened by CA's plan to release the software under an open-source license.

7 **Sun streamlines** its identity management products, fully integrating Waveset's technologies with its own.

12 **Antispyware tools** offer companies a way to centrally eliminate the security problems posed by adware and spyware.

12 **The DHS's IT integration** efforts are lagging, says the GAO, even as the department bolsters its security plans for a period of heightened threat.

13 **Rogue wireless installations** complicate technical support and pose security problems, say some IT managers.

14 **The U.S. Postal Service** is installing a single sign-on system designed to support about 155,000 employees.

14 **BEA's Diablo** app server is intended to let users upgrade and patch applications without having to go off-line.

16 **Linus Torvalds proposes** tighter tracking of contributions to the Linux kernel.

16 **Microsoft eyes Cisco market** and says hardware vendors will sell its ISA Server product on their firewall devices.

TECHNOLOGY

21 **Sabre Flies to Open Systems.** Here's how the travel systems company migrated its 1960s-era mainframe-based shopping engine to a new architecture built on Linux and HP NonStop servers.

30 **QuickStudy: RSS.** This XML-based format lets Web site administrators syndicate Web content for publication on other sites — and keeps the information up to date.
See *Computerworld*'s RSS feeds:
QuickLink a4600

31 **Security Manager's Journal: Worm Lays Waste to IT's Defenses.** Unpatched servers in a test lab provide the perfect launching pad for a Sasser attack.

MANAGEMENT

33 **End of the Affair.** Taking outsourced functions back in-house is a complicated and tricky business. CIOs who have done it say planning ahead and attention to detail can make all the difference.

38 **Boutique Shopping.** Specialized IT consulting firms can add deep experience and agility to IT projects, but there are risks to be managed as well.

40 **Career Watch.** A Premier 100 IT Leader offers readers career advice. Plus, a statistic on big-time morale problems among IT workers, and a quick profile of this year's college graduates.

OPINIONS

8 **On the Mark: Mark Hall** reports that Sun's unique license scheme for its Java tools will spread beyond Solaris.

18 **Maryfran Johnson** says that when it comes to monitoring employee e-mail, it's not IT's role to decide if and when to deploy the technology.

18 **David Moschella** observes that for the first time, vendors are taking a back seat to users in the development of information technologies.

19 **Virginia Robbins** sees some hope for IT managers who are trying to keep their technology infrastructures up to date in budget-constrained times.

32 **Curt A. Monash** believes your organization can introduce new and better analytical business processes — you just have to do it a chunk at a time.

41 **Catherine A. Tomczyk** learned most of what she needs to know to keep IT projects on track in kindergarten.

50 **Frankly Speaking: Frank Hayes** says Tim Berners-Lee's vision of the next-generation Web is closer than you think, and it'll matter to you more than you might expect.

DEPARTMENTS/RESOURCES

At Deadline Briefs 6
News Briefs 8, 14
Letters 19
IT Careers 45
Company Index 48
How to Contact CW 48
Shark Tank 50

ONLINE

WWW.COMPUTERWORLD.COM

How to Survive Federal Spam Restrictions

IT MANAGEMENT: Two attorneys offer guidelines for nonspamming businesses on how to to navigate CAN-SPAM compliance issues. **QuickLink 46666**

What Makes a Supply Chain Successful

ERP/SUPPLY CHAIN: Today's global and complex supply chains are fragile, subject to disruption by any number of events in the world. UPS's Bob Stoffel lists the keys to building supply chains that don't break down. **QuickLink 47032**

Five PC 'Security Guards'

SECURITY: These tips from IBM's director of security and wireless solutions can help you protect your perimeter. **QuickLink 46952**

The Defense-in-Depth Approach to Malware

SECURITY: With the right tools to protect workstations and servers from malicious software, your chances of suffering a catastrophic loss are greatly diminished, explains columnist Douglas Schweitzer. **QuickLink 46984**

IT's Best, Worst Vendors

The results of our exclusive customer-satisfaction survey are still available at **www.computerworld.com/satisfaction** (free registration required).

What's a QuickLink?

Throughout each issue of *Computerworld*, you'll see five-digit QuickLink codes pointing to related content on our Web site. Also, at the end of each story, a QuickLink to that story online facilitates sharing it with colleagues. Just enter any of those codes into the QuickLink box, which is at the top of every page on our site.

ONLINE DEPARTMENTS

Breaking News
QuickLink a1510

Newsletter Subscriptions
QuickLink a1430

Knowledge Centers
QuickLink a2570

The Online Store
QuickLink a2420

AT DEADLINE

HP Will Support MySQL, JBoss

Hewlett-Packard Co. this week plans to announce that it will provide technical support for the MySQL open-source database and JBoss application server to users of its ProLiant and Integrity servers. HP said its agreements with MySQL AB and JBoss Inc. take effect on Tuesday. As part of the deals, the two open-source technologies will be tested and certified for use on HP's servers.

Treasury Dept. Names IT Chief

The U.S. Department of the Treasury named Ira Hobbs as its new CIO, effective June 13. Hobbs has been deputy CIO at the Department of Agriculture for the past seven years and is co-chairman of the federal CIO Council's Workforce and Human Capital for IT Committee. He replaces Drew Ladner, who left the agency April 30.

CA Offers to Settle Cases, Makes Profit

Computer Associates International Inc. reported an $89 million profit for the fourth quarter of fiscal 2004 and said it has made an initial offer to settle accounting investigations by the Department of Justice and the Securities and Exchange Commission. CA recorded a $10 million charge in its fourth quarter, which ended March 31, in connection with the settlement offer. (For coverage of CA's user conference, see next page.)

Oracle Executive to Run Eclipse Group

The group that took control of the Eclipse open-source application development technology from IBM in February plans to name its first executive director this week. The Asheville, N.C.-based Eclipse Foundation will be headed by Mike Milinkovich, formerly vice president of application server technical services at Oracle Corp.

EMC Launches Piranha Array With Dell in Tow

Large users could be put off by lack of ties to ControlCenter management tools

BY LUCAS MEARIAN

EMC CORP. last week formally announced its Piranha disk array, an entry-level device that Dell Inc. and other resellers plan to market to small businesses and to companies with distributed operations.

However, the new array initially can't be managed by EMC's enterprise-class ControlCenter storage management software — a shortcoming that some IT managers and analysts said could be a roadblock for large corporate users.

The rollout of Piranha, which officially is called the Clariion AX100, came one week after EMC announced a low-cost network-attached storage (NAS) gateway [QuickLink 47033]. EMC said the AX100 can be directly attached to the NetWin 110 NAS Gateway or bought as a preconfigured storage-area network (SAN) with data backup and storage management software, a Fibre Channel switch and host bus adapters.

During a press conference with Dell officials, EMC CEO Joe Tucci said the AX100 is well suited for banks, brokerages, retail chains and other users that are looking to consolidate the storage capacity on servers and simplify backup procedures in remote offices.

The AX100, which starts at $4,999 through Dell, uses low-cost Serial ATA disk drives instead of Fibre Channel ones. But Tucci said the array isn't aimed at the secondary storage applications typically associated with Serial ATA. "This is the real McCoy," he said. "This is going to be primary storage."

Remote Control

John McArthur, an analyst at market research company IDC in Framingham, Mass., said that for the AX100 to make big inroads among enterprise users, it needs to interoperate with ControlCenter. That would give storage administrators centralized control of AX100s that are installed in branch offices, McArthur added.

Matt Ebaugh, CIO at Commonwealth Health Corp. in Bowling Green, Ky., agreed that he wouldn't be interested in the AX100 unless it could help him centralize management of his storage architecture. "I only want one SAN fabric in my enterprise," he said. "SAN islands require more administration."

Commonwealth Health currently uses a Clariion CX600 midrange array with 10TB of storage capacity, and Ebaugh said he hopes to expand that this year in order to keep up with the company's growth.

Mike Wytenus, senior director of EMC's Clariion platforms, said integration of the AX100 with ControlCenter will "happen at some point." An EMC spokesman added that the AX100 can be remotely monitored and managed via a Web portal using its built-in tools. That should be enough for small businesses, which is the primary target market for now, the spokesman said.

The AX100 will be sold through channel partners, except for purchases that involve large quantities, Tucci said. Dell will manufacture the array for its own shipment needs, expanding a deal under which it now makes EMC's CX300 device.

Kevin Rollins, Dell's president and chief operating officer, said users who aren't IT professionals should be able to set up the AX100 in less than an hour. Asked whether Dell and EMC are looking to trigger a low-end storage price war, Rollins said, "It wouldn't be the worst thing to happen."

McArthur said the AX100 puts EMC in position to compete for market share against server vendors that offer internal storage capacity, including Dell itself. "Right now, Dell takes them to a space they were having challenges getting to," he said. "Over time, it could end up in some competition between them." 47218

PRODUCT DETAILS

Clariion AX100

- Scales from 480GB to 3TB in a 2U (3.5-in.-high) rack-mountable enclosure with space for 12 Serial ATA drives.
- Is sold in a single-controller model with RAID 5 capabilities and battery-backed cache, plus a dual-controller version with mirrored cache and redundant power supplies.
- Includes dual 2Gbit/sec. Fibre Channel I/O ports and wizard-based storage management tools with a Web GUI.
- Supports Windows, Linux and NetWare and can store data for up to eight servers in SAN or NAS configurations.
- Pricing starts at $4,999 for direct-attached models and $9,999 for SAN configurations through Dell; EMC's base list price through other resellers is $5,999.

IBM Ties File Virtualization Software to Rival Arrays

IBM last week announced an upgrade of its distributed file-system software that extends storage-pooling capabilities to SAN devices sold by its major disk array rivals, including EMC, Hewlett-Packard Co. and Hitachi Data Systems Corp.

Until now, IBM's TotalStorage SAN File System software worked only with the company's own disk arrays and servers running its AIX operating system or Windows 2000. IBM said the upgrade, which is due to ship June 29, will also support systems running Solaris 9 and Red Hat Enterprise Linux 3.0.

In late April, IBM released a multivendor iteration of its SAN Volume Controller software, which pools block-level disk capacity on storage networks [QuickLink 46560]. In comparison, SAN File System creates a common file-sharing protocol that lets servers use a SAN as if it were a local file system.

Leslie Southern, high-performance computing director at the Ohio Supercomputer Center in Columbus, said she has been beta-testing SAN File System Version 2.1 for the past month in the hope that it can provide a shared data management infrastructure across 600TB of storage she recently added to the center's storage network.

Southern said she expects to get better performance using SAN File System instead of the Network File System on the center's servers. The IBM software also should give system files a standard appearance, she added. "The idea is, when a user logs into any one system here, it will appear the same as all the others . . . with the same directories," she said.

– Lucas Mearian

Open-Source Plan Buoys Ingres Users

CA's new strategy could give DB a boost, loyalists say

BY MATT HAMBLEN
LAS VEGAS

Users of Computer Associates International Inc.'s Ingres database were energized by last week's announcement that CA plans to release the software under an open-source license and integrate it with technology from JBoss Inc. and other open-source developers.

Ingres has become an also-ran in the database market in the 10 years since CA bought it. But a group of about 20 long-time Ingres users who met during the CA World 2004 conference here said the move to open-source should give the database a higher profile and may help them fight off internal pressure to migrate their systems to Oracle, DB2 or SQL Server.

MATT HAMBLEN
TYLER McGRAW says strategy will bring new respect to Ingres.

"I'm tired of being treated like an ugly stepsister and a second-class citizen because I use Ingres," said Tyler McGraw, a database administrator at paper maker Bowater Inc. in Greeneville, S.C. McGraw has used Ingres for 15 years. "Ingres is a good product, and I dig CA's open-source effort. Now I don't have to apologize for my database."

Erica Harzewski, a database administrator at medical device maker Guidant Corp. in Temecula, Calif., said CA's new strategy will make it easier to defend Ingres to her bosses, who want to move to Oracle databases. "Oracle is much more expensive and complex than Ingres," said Harzewski, who has used the software for 13 years. "CA wouldn't put Ingres out for open-source if it was a piece of crap."

The user meeting itself illustrated the plight of Ingres, at least in the U.S. database market. The meeting was held by the North American Ingres User Association, which is seeking new members as it tries to reorganize after two years of inactivity, said NAIUA President Carmen Huff, lead database administrator at Alliance Data Systems Inc. in Dallas.

MATT HAMBLEN
ERICA HARZEWSKI says it will be easier to defend Ingres to her bosses.

"Going open-source is a great idea," Huff said. She noted that although Ingres has fallen off the market-share charts in the U.S., it's still among the most popular databases in Australia and parts of Europe.

CA said Ingres will be released within 90 days under a newly created Trusted Open Source License, which it described as a derivative of the GNU General Public License (GPL). The Ingres announcement was the centerpiece of a wider plan that also includes the addition of open-source document management software to CA's BrightStor line and joint development work with Atlanta-based JBoss and Fredericksburg, Va.-based Zope Inc.

Sam Greenblatt, senior vice president and chief architect in CA's Linux technology group, said the open-source release will expose Ingres to about 100,000 developers associated with JBoss, Zope and the Plone Foundation, a new not-for-profit group focused on the Plone document management software that's being added to BrightStor.

CA's open-source license includes an indemnification feature that goes beyond the GPL and is designed to protect the integrity of Ingres, Greenblatt said. Users will be able to download the database for free but will pay fees for support, maintenance and indemnification, which will provide them with a certificate that lists who developed different pieces of the code. CA will track development and update the certificates as needed.

Dan Kingston, a database administrator at American Digital Systems Inc. in Salt Lake City, said he and his colleagues had started worrying about CA's commitment to Ingres until last week's announcement. "It's an excellent move," Kingston said, "but CA has to be careful how they move it to open-source."

He added that he doesn't want to see software quality compromised by security vulnerabilities and other bugs — a concern that was echoed by several other users. **47216**

Sun Streamlines Identity Management Offerings

BY JAIKUMAR VIJAYAN

Sun Microsystems Inc. on Tuesday will announce a consolidated line of identity management products that combines its own technologies with those obtained from its acquisition of Waveset Technologies Inc.

The company will also announce new partnerships with Deloitte & Touche LLP and PricewaterhouseCoopers to help deploy the products at customer locations.

Sun's identity management line, which consisted of eight products after the Waveset purchase in December [QuickLink 42934], has been consolidated to three: an identity manager, an access manager and Directory Server Enterprise Edition.

The consolidated product line marks the "culmination of the Waveset acquisition" and is designed to reduce complexity and costs, said Kevin Cunningham, director of identity management products at Sun.

Sun's Identity Manager technology, for instance, combines Waveset's Lighthouse user provisioning technology with Sun's metadirectory capabilities. The integration will make it easier for companies to use identity information to provision access to multiple enterprise applications, Cunningham said.

The new products also provide broader support for standards, Cunningham said. Sun's Access Manager, for instance, supports both Liberty Phase 2 and SAML 1.1 federation standards, he said.

"We feel like they have got a pretty solid strategy in that it uses open standards and uses federated [identity management] concepts," said David Endicott, vice president of technology at Sabre Airline Solutions in Houston.

Sabre is using Sun's identity management technology to authenticate users from 54 airlines and provide personalized access to over 20 different applications via its eMergo application service provider portal.

"A lot of the things we do from an application perspective use Java. So using [Sun's] ID server as part of our ASP offering was a natural choice for us," Endicott said. Sabre will investigate how it can take advantage of the new provisioning capabilities being offered by Sun with its Identity Manager offering, he added.

Sun's integration of Waveset technology and its success in retaining most of Waveset's employees bode well for the company's ambitions in the identity management market, said Earl Perkins, an analyst at Stamford, Conn.-based Meta Group Inc. **47213**

Consolidated ID Management

Sun Java System Identity Manager · Combines Waveset's provisioning technology with Sun's metadirectory capabilities.

Sun Java System Access Manager · Features new support for Liberty Phase 2 and SAML 1.1.

Sun Java System Directory Server Enterprise Edition Repository for storing enterprise identity information, featuring built-in fail-over load-balancing, security, and integration with Microsoft Active Directory.

Sun to Expand Data Center Services

Sun on Tuesday will unveil plans to broaden its services offerings beyond hardware support, to include support for the people and processes that interact with its systems.

Often, data center failures are the result of flawed processes or employee mistakes, said Mike Harding, director of Sun Preventive Services.

The preventive services offering, which now carries a single price for services that in many cases had been priced separately, is based on an assessment of the degree of risk of outages in a data center.

Sun has developed a methodology to measure the risk. Once changes are made to improve operations based on a risk assessment using that methodology, pricing can decline as much as 20%, said Harding.

The service will initially focus on Sun products but by next year will also support systems from other vendors, he said.

– Patrick Thibodeau

MORE COVERAGE

Interim CA CEO Ken Cron and former chief Sanjay Kumar clarify management roles:
QuickLink 47100

Some CA World attendees say they want better integration of CA's products:
QuickLink 47086
www.computerworld.com

BRIEFS

PeopleSoft Rejects New Oracle Bid . . .

PeopleSoft Inc. said its board of directors has voted to reject Oracle Corp.'s latest takeover bid – no surprise, since Oracle's new offer is worth about $1.7 billion less than its previous one. Oracle on May 14 cut the price it would pay to $7.7 billion, citing changes in market conditions and the value of PeopleSoft's stock. PeopleSoft said the reduced offer "is inadequate and does not reflect PeopleSoft's real value."

. . . And Agrees on Class-Action Deal

In a related matter, PeopleSoft has agreed to settle class-action lawsuits filed in Delaware and California by shareholders over a customer-refund offer that was put in place after Oracle began its buyout bid last June. PeopleSoft, which let the Customer Assurance Program lapse in April, said any future reinstatement would apply only to actions taken by Oracle if it succeeds in buying the company.

Akamai's Servers Slowed by Glitch

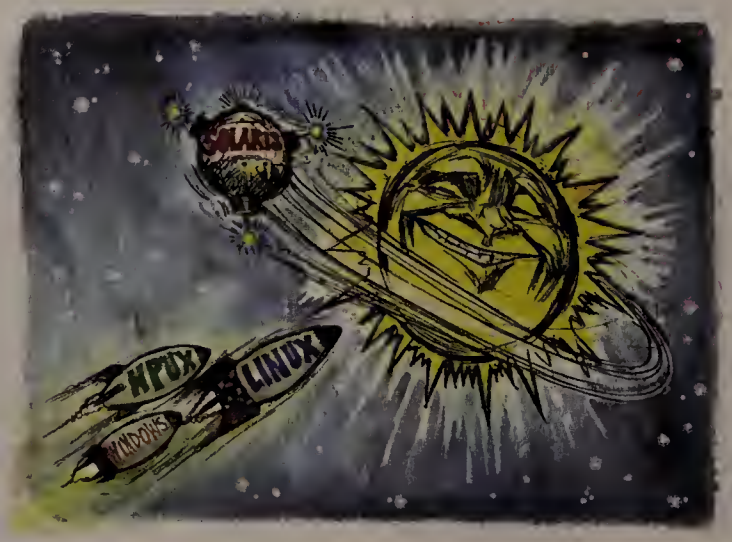
Akamai Technologies Inc. said the servers it uses to distribute content to Web sites were affected by a software glitch last Monday, causing performance to slow down on some sites for about 90 minutes. The Cambridge, Mass.-based company said the problems were caused by a bug in its proprietary content management software, not by "outside interference."

Lucent Signs Deal To Buy VoIP Vendor

Lucent Technologies Inc. said it plans to acquire Telica Inc., a Marlboro, Mass.-based vendor of voice-over-IP technology, in a stock-swap deal valued at about $295 million. Telica has about 250 employees.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL



MATTHEW FAULKNER

Sun's Infinite Pricing Scheme Reaches . . .

. . . Linux, Windows and even HP-UX for its integrated Java Enterprise System package. The JES components include application, portal, directory, identity, Web and other servers as well as a fistful of Java-based tools for deploying online applications. Currently Sun's "infinite" pricing policy applies only to its Solaris operating system and lets organizations license the array of Java components on an annual subscription basis at $100 per employee. You can still license software the old-fashioned way, says Stephen Borcich, executive director for Java enterprise technologies at Sun Microsystems Inc. "It's more complex, but it's your choice," he says. By the end of June, Sun will extend its unique pricing model to Linux users and in late 2004 to HP-UX and Windows fans. Companies that use the tools to extend applications to end users on the Internet or throughout their supply chains incur no extra charges. Furthermore, in June, Sun will offer developing nations a similar plan for the JES components at 33 cents per citizen. And in a move to attract more developers, later this year programmers anywhere in the world who buy Java Studio Enterprise will get a free Opteron server. Previously, the giveaway was good only for U.S.-based coders.

$140B
What IDC says companies spend yearly for software.

Dump shelfware while tracking . . .

. . . company software usage down to the component level. That's the promise of this week's release of FLEXnet Manager from Macrovision Corp. in Santa Clara, Calif. "Most companies have no clue about how software is being used," claims Daniel Greenberg, Macrovision's vice president for worldwide marketing. Market research company IDC backs up Greenberg, noting that 67% of you don't bother to track your software assets. Given the billions upon billions of dollars spent on software each year, that seems a bit of an oversight. FLEXnet manager drops a small agent on machines whose licenses you want to manage and keeps tabs on who's using what and when, giving you a better handle on how to distribute applications. You can even use it to track your own custom apps — a help when you want to bill back departments. Speaking of billing, FLEXnet Manager even has a reporting tool for the CFO so the finance department can plan expenses more accurately. Pricing starts at $20,000.

Indian SAP project managers "jumping . . .

. . . ship," which frustrates companies that went offshore with their ERP operations. That's the claim from Christopher Carter, CEO of Carter Consulting Inc. in Hales Corners, Wis. But it has also helped him to "bring on more remote American SAP workers" to manage ERP sites from afar. But not that far. They work from their homes across the U.S. He says that the best Indian project managers are being lured away by the likes of IBM and SAP AG, which have set up shop on the subcontinent, and it's creating chaos for users. Carter pays his SAP consultants $75k to $80k per year, but they run two to four SAP installations remotely. So, depending on your situation, send him your résumé or your business. He's looking for both.

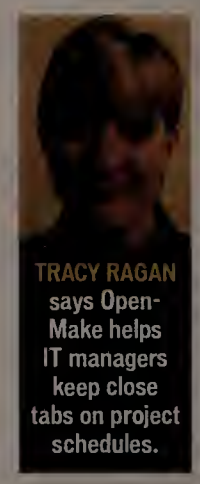
Security's a snap with appliances . . .

. . . that integrate with a managed service. By the end of June, ClearPath Networks Inc. in El Segundo, Calif., will ship five Secure Network Access Platform (SNAP) appliances that can handle between 10 and 500 concurrent user sessions, depending on the model. Designed for branch offices and midsize operations, the SNAP devices deliver integrated firewall, antivirus and other network security tasks, all overseen in ClearPath's round-the-clock network operations center. Pricing starts at $595 for the appliances, and CEO Cliff Young says monthly subscription costs for the managed service can average as little as $145.

SNAP takes up to 500 user sessions.

Software development tool to give . . .

. . . managers better insight into a project's process. Tracy Ragan, CEO of Catalyst Systems Corp. in Glencoe, Ill., says the 6.4 release of OpenMake, scheduled for late this year, will let managers "spy on the development team" with a slew of new reporting tools that can show how often software builds are performed and what kinds of files are being generated during the builds. OpenMake already lets developers bypass the time-consuming scripting process needed to build an application under development into its most up-to-date condition, which is vital for projects being worked on by multiple developers. OpenMake can already cut 80% of the time it takes to create a build file. With the impending reports, Ragan says, IT managers can keep a closer watch on a project's schedule.



TRACY RAGAN says OpenMake helps IT managers keep close tabs on project schedules.

47181

CONSIDER YOUR NATIONAL DEALER NETWORK.
Consider the dots connected.

Now we can design, deliver and manage a data integration system that brings it all together. Converge every kind of business network – dealers, brokers, suppliers, customers – across platforms, across America. All on the strong, reliable backbone of the SBC network. To connect the dots coast to coast, talk to your SBC account representative.

GOING BEYOND THE CALL.®

sbc.com/dots

SBC

SBC, the SBC logo and GOING BEYOND THE CALL are registered trademarks of SBC Knowledge Ventures, L.P. ©2004 SBC Knowledge Ventures, L.P. All rights reserved.

- 19" Analog/Digital TFT-LCD
- Full pivot, tilt and swivel, wall mountable
- 178°/178° – Widest viewing angle of any LCD
- MagicTune™ on-screen image control

Visit www.samsungusa.com/monitor or call 1-800-SAMSUNG

Inc. Samsung and MagicTune are registered marks of Samsung Electronics Corp., Ltd. Screen images simulated.

Designed to work the way business works.
Samsung's 193P display.
We know how business works. We've spent years researching the subject, which allows us to engineer monitors that fit the people who use them. Our 193P display is ergonomically designed to move the way people move. And with its MagicTune™ software, personalizing the display is now a hands-free experience. This kind of thinking is responsible for over 67 design awards worldwide. Not to mention, displays that work on the same level as you.

Antispyware Products Target Corporate Users

Tools are designed to provide centralized means of eliminating spyware, adware

BY JAIKUMAR VIJAYAN

RESPONDING TO growing corporate concerns about the security and performance issues posed by spyware programs, several vendors are preparing to release enterprise editions of their antispyware tools.

But while the new tools can be useful, most have yet to be tested in corporate environments, and they may not offer all of the functionality needed by large companies, analysts cautioned.

This week, PestPatrol Inc. in Carlisle, Pa., will introduce a corporate version of the antispyware product it has been selling in the consumer space. PestPatrol Corporate Edition features a central management console that lets administrators scan groups of desktops for spyware and adware, quarantine infected systems, and cleanse them automatically, according to Roger Thompson, PestPatrol's vice president of product development.

The technology, which sells for less than $10 per user, employs a client-side software agent to scan desktops, and lets administrators schedule scans and specify what kinds of spyware programs to delete, he said.

Meanwhile, Boulder, Colo.-based Webroot Software Inc. on June 14 will launch an enterprise edition of its Spy Sweeper consumer product, offering similar centralized administration capabilities.

And Cupertino, Calif.-based antivirus software vendor Trend Micro Inc. plans to announce new spyware-detection functions in two versions of its products, also scheduled to be released June 14. The features allow companies to scan for spyware at both the desktop and server levels.

San Francisco-based firewall vendor Zone Labs Inc., which already sells a product that allows companies to scan noncorporate devices accessing their networks, later this year will release similar antispyware tools for enterprise systems, said Fred Felman, a Zone Labs vice president.

The American Bankers Association in Washington is planning to deploy PestPatrol's enterprise software on 400 desktops to deal with the problem, said Lisa Mills, a systems integration specialist at ABA. "I am losing two to three machines a week to spyware, adware and other malware," Mills said. Some systems have over 1,500 spyware programs installed on them, including keystroke loggers, remote-control programs, Trojan horses and back doors, she added.

The ABA has tested PestPatrol's consumer products on some of its systems and is planning to use the new version to centrally detect and remove spyware from network-connected desktops, Mills said.

WHAT IT DOES

Enterprise versions of antispyware technology aim to help companies:

- Centrally deploy and manage antispyware capabilities.
- Scan systems to detect spyware and remove it from infected desktops.
- Proactively alert users or block new spyware from being downloaded.

Cleaning House

Cornell University's athletics department is using PestPatrol's consumer software to deal with a burgeoning spyware problem. The department has deployed the software on about 150 of its 250 desktops, and so far, the product has done "an excellent job," said Ricky Stewart, the department's IT director.

Although the consumer version used by Cornell had been tweaked to support a degree of central control, it still had to be individually loaded on desktops. It allowed a central administrator to scan for spyware and delete it, but only when the system was logging into the network. It also lacked the automatic updates that are available on the new enterprise version.

But even with the arrival of these enterprise versions of antispyware tools, more work remains to be done before they're truly ready for corporate use, said Peter Firstbrook, an analyst at Stamford, Conn.-based Meta Group Inc.

Most of the first-wave products, for instance, still don't offer an easy way for companies to update the lists used to identify spyware programs.

Policy management functions aren't particularly sophisticated, and some products allow for a dangerous level of interaction by end users, he said. Similarly, few products are able to automatically force updates out to desktops as needed, instead relying on the client-side agents to pull updates in, Firstbrook added.

Moreover, what may be considered spyware by one company can be a legitimate monitoring tool in another — such as a keystroke logger to defend against corporate espionage. Enterprise antispyware tools therefore need to be able to be customized, said David Moll, CEO of Webroot Software. **47215**

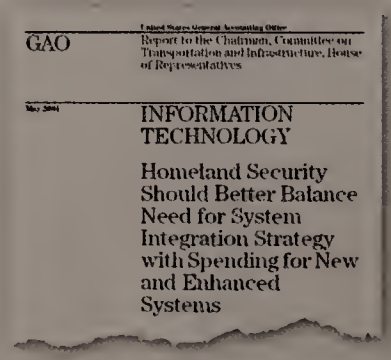
IT Integration Efforts Falter As DHS Plans for Election Security

BY DAN VERTON
WASHINGTON

U.S. Department of Homeland Security officials for the past three weeks have been quietly preparing a 100-day plan to bolster cyber- and physical security around critical infrastructures in advance of a possible terrorist attack this summer. And they've been doing so without the benefit of a sufficiently integrated IT infrastructure.

Amid new warnings that terrorists are likely to attack in the next few months in an effort to influence the November presidential election, the U.S. General Accounting Office has found that the DHS has made only limited progress in its IT systems integration efforts — efforts that government officials see as critical to the effective execution of DHS plans.

The specific cybersecurity aspects of the DHS's planning stem from an April 30 emergency brainstorming meeting headed by DHS Deputy Secretary Admiral James Loy. During the unclassified meeting, to which *Computerworld* was granted exclusive access, Loy urged his senior executives, including two members of the Homeland Security Council, to think radically about the interdependence of physical and cybersecurity and to reach out aggressively to the private sector for cutting-edge ideas and technologies.


GAO

Report to the Chairman, Committee on Transportation and Infrastructure, House of Representatives

INFORMATION TECHNOLOGY

Homeland Security Should Better Balance Need for System Integration Strategy with Spending for New and Enhanced Systems

DHS CIO Steve Cooper, who attended the meeting, didn't escape tough scrutiny in the GAO's May 21 report. Cooper, the official responsible for leading the department-wide systems integration effort, has been "hampered by insufficient staffing [and] higher-priority demands, such as establishing a department-wide e-mail system," according to the GAO. More important, the department has yet to give Cooper central control of the IT investments made by all 22 DHS departments, increasing the risk that dozens of systems will require a costly revamp to integrate later, the GAO warned.

Meanwhile, the U.S. Secret Service, now part of the DHS, has begun what the agency calls "critical systems advance work" assessing the security of the critical infrastructures surrounding the sites of this summer's Republican and Democratic conventions in New York and Boston, respectively.

"Buildings today are not mechanical buildings; they're smart buildings that are run by computer systems," said Bruce Townsend, deputy assistant director for investigations.

"We now have to take into account not only the physical aspects of securing that venue but also the virtual, or cyber, aspects as well," he said. "Somebody could attack us through the cyber realm and render vulnerable what would otherwise be a sound security plan." **47205**

BORDER CONTROL

The DHS is poised to award a 10-year contract for the US-VISIT program:

QuickLink 47231
www.computerworld.com

Unauthorized Wireless Users Strain Corporate Networks

IT managers say rogue installations pose security risks, complicate support

BY DAVID RAMEL
PALM DESERT, CALIF.

Mobile & Wireless World

End users are driving much of the mobile and wireless innovation inside companies, which can cause security, support and management problems — especially when devices and applications not sanctioned by IT departments find their way onto networks.

That was one of the messages from IT managers who attended *Computerworld*'s second annual Mobile & Wireless World conference here last week. The event, which attracted about 244 registrants from user companies, put a spotlight on the havoc that can be caused by rogue users of wireless LANs.

'Maddening' Problem

"The problem of rogue employees is maddening. It'll drive you crazy," said Marc Simms, director of IT at Shared PET Imaging LLC. Simms is part of a small IT support team that serves 110 employees at the Canton, Ohio-based company, which provides medical scanning services to hospitals. The IT staff ran into problems when end users began bringing in their own mobile equipment. "They were bringing their own laptops in, their own handhelds, different types of PDA devices," Simms said. "It became a support nightmare."

He solved the problems by working with users to define their requirements and then with Shared PET's hardware supplier, Dell Inc., to standardize systems to meet the requirements.

In the process, he provided workers with wireless access, which quickly raised the issue of security. Simms said he dealt with the security concerns by using Firetide Inc.'s mesh networks, which use proprietary technology to "lock in" network devices so they can communicate only with one another.

Larger companies face the same kind of problems. For example, Colin Seward, an IT manager at Cisco Systems Inc., said the networking vendor has launched a program called Cisco Pocket Office Services to manage different kinds of mobile devices. Cisco "recognized that we had to support these devices [because] they were just coming into our organization anyway," he said.

NED REDWAY

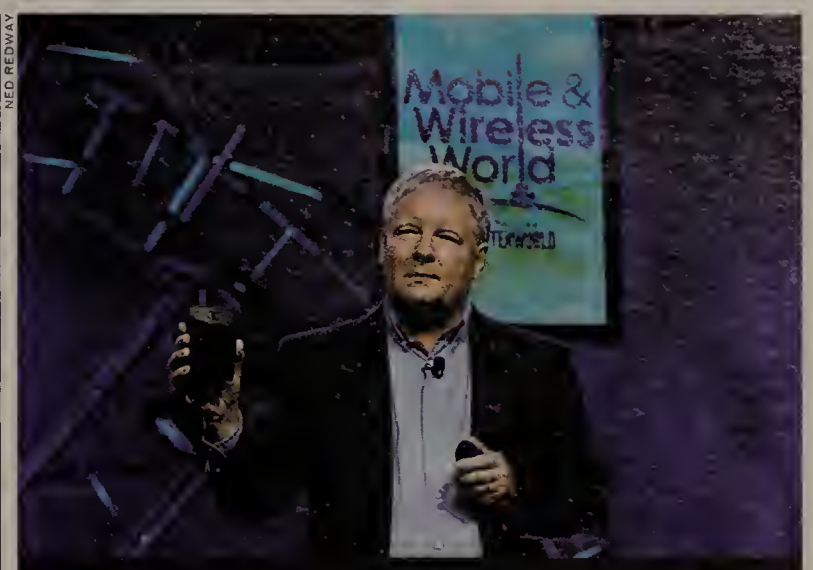
Cisco's Colin Seward said the company decided it had to support mobile devices because "they were just coming into our organization anyway."

The Pocket Office program certifies what devices are supported and requires users to register ones they buy themselves and agree to terms-of-use conditions, Seward said. It also provides remote management of the devices, including software upgrades and security services, as well as the ability to block network access for those that are lost or stolen.

Richard Stone, wireless and mobility solutions manager at Hewlett-Packard Co., said IT managers often aren't proactive enough. Their attitude, he said, is one of resignation: "Wireless is insecure, so we've decided to do nothing."

But end users aren't standing still, Stone warned. Sales statistics show that half of HP's iPaq handheld PCs are bought through the retail channel, he said, adding that it's not uncommon for companies to see unsanctioned WLAN connections popping up on their networks.

NED REDWAY



"Start to set standards today," HP's Richard Stone tells IT managers.

"Start to set standards today," Stone advised. Beyond that, IT managers should sniff out any unauthorized WLANs and either shut them down or show users how to set them up properly, he said.

Such actions are needed because the benefits of introducing mobile and wireless technology to corporate networks are so compelling, Stone noted. He described an HP program to equip 1,200 customer service engineers with notebook PCs and wireless network cards. HP estimated that the project would provide a return on investment of $2.1 million, but the actual ROI turned out to be $8.6 million, Stone said. **47206**

READ MORE ONLINE

Three vendors are teaming up to develop a mobile phone that can switch from WLANs to wide-area cellular networks:
QuickLink 47198

The adoption of wireless continues to be hampered by security concerns:
QuickLink 47173
www.computerworld.com

Keep Mobile Apps Simple, Say IT Managers

BY BOB BREWIN
PALM DESERT, CALIF.

When IT managers develop mobile and wireless applications, keeping them simple and small is usually the best route to take, according to several experienced users who spoke at Mobile & Wireless World.

Even though mobile devices can mimic most of the capabilities of a desktop PC, such as handling attachments and rich text documents, plain text is usually a better choice for sending data, said Ralph Nichols, a service program manager at Pitney Bowes Inc. in Stamford, Conn. Nichols developed a purely text-based mobile application that is being rolled out to the mailing equipment maker's 3,500 field service technicians.

Pitney Bowes is even avoiding the use of abbreviations that might confuse end users, he said. The system, which will be used to dispatch workers and report the results of service calls, includes text fields that provide customer names, the types of machines they have and the problems they're experiencing. Nichols said the mobile application is integrated with Siebel Systems Inc.'s field service management software, which includes similar fields.

Another text field lists repair parts, enabling service technicians to send messages that automatically update spare-parts inventories on Pitney Bowes' back-end systems. The mobile application initially was installed at one field service unit last year and now is being deployed throughout the U.S. and Canada, Nichols said.

Companies that want to deliver data to end users who have devices smaller than laptop PCs need to make sure it is "concisely formatted" to fit on a 3-inch screen, said Justin Hectus, director of information at Keesal, Young & Logan, a law firm in Long Beach, Calif.

Hectus said attorneys at the firm use mobile devices that are hooked into the back-end knowledge management system. Simple but powerful text fields let the users enter small amounts of information on the fly and quickly share the data with other workers.

Travel Inc., a corporate travel firm in Duluth, Ga., found keeping it simple a daunting task when it was planning an application that would let customers access itineraries and Department of Homeland Security alerts while on the road. The company's customer base of about 100,000 business travelers uses myriad mobile devices, said Linwood Hayes, its chief technology officer.

Hayes eventually hooked up with Atlanta-based Air2Web Inc., which helped him design a system that can send information to any mobile device worldwide. The m-Itinerary service, which Travel Inc. launched early last year, relies on the simplest mobile data interface — Short Messaging Service — to push information to customers, Hayes said. **47203**

BRIEFS

Cisco Adds High-End Router for Carriers

Cisco Systems Inc. introduced a new top-of-the-line router that's aimed at telecommunications carriers, at least initially. The CRS-1, short for Carrier Routing System, is due in July at a starting price of $450,000. A single 16-slot rack can process traffic at rates of up to 1.2Tbit/sec., Cisco said, adding that the router can be expanded to 72 racks in eight interconnected chassis for maximum throughput of 92Tbit/sec.

MasterCard Ties DB To Oracle ERP Apps

MasterCard International Inc. said it has integrated its global transaction data repository, which is based on an Oracle Corp. database, with Oracle's ERP software. Users can activate the links at no extra cost, it said. The Purchase, N.Y.-based company sells a connection to SAP AG's software as a stand-alone product and is now working to tie its repository to PeopleSoft Inc.'s applications.

Info Builders Adds BPM Software Suite

At its annual user conference in New Orleans, Information Builders Inc. announced a suite of business performance management software that includes end-user dashboards and financial reporting tools. New York-based Information Builders said the BPM offering starts at $50,000 and supports standards created by Balanced Scorecard Collaborative Inc.

Xerox Loses Patent Case to PalmOne

A U.S. District Court judge in Rochester, N.Y., ruled that a handwriting-recognition patent held by Xerox Corp. is invalid and dismissed its infringement lawsuit against PalmOne Inc. The judge said the technology existed before Xerox patented its Unistrokes software.

Postal Service Pushes Envelope On Single Sign-on Technology

Automated user ID/password system will support more than 155k employees

BY LINDA ROSENCRANCE

THE U.S. POSTAL Service this summer plans to complete the installation of a single sign-on system that will support about 155,000 end users and more than 7,000 applications and Web sites — one of the largest deployments of the user access technology done thus far.

The new system has already been rolled out to 147,000 users, and Bob Otto, chief technology officer at the USPS, said last week that the 11-month rollout is due to be finished in August. The new system lets USPS workers log onto 1,000 internal applications and 6,000 external ones using only their Windows passwords, Otto said.

"If this isn't the largest [deployment] in number of users, it's way up there," said Jonathan Penn, an analyst at Forrester Research Inc. in Cambridge, Mass. "By far, it's the largest in terms of number of applications supported."

The system is built around single sign-on software developed by New York-based Passlogix Inc., which will announce the deployment this week. Otto said the USPS turned to Passlogix's v-Go Single Sign-On (SSO) technology to solve its No. 1 end-user problem: remembering passwords.

Addressing Security

"An average end user had five to 10 different log-on IDs and passwords, and they wrote them down on little pieces of paper and stuck them under their mouse pads [or] under keyboards," Otto said. "They hid them everywhere because they couldn't remember them. That was a big security issue."

In addition, calls to the help desk by end users who had forgotten their passwords were costing the USPS millions of dollars per year in operating costs, according to Otto.

Deployment Strategy

- The USPS used Microsoft's Systems Management Server software to roll out v-Go SSO to 35,000 Hewlett-Packard PCs that already were installed.
- It gave HP a custom desktop image preloaded with 62 applications, including v-Go SSO, that was installed on 95,000 new PCs before delivery.

Now, v-Go SSO stores user IDs and passwords for applications in an encrypted format within Microsoft Corp.'s Active Directory software, said Wayne Grimes, manager of customer care operations in the USPS's IT department. When users boot up their PCs and start opening applications, the software automatically enters their IDs and passwords, he said.

Even with the rollout not yet completed, the help desk currently averages only about 10 password-related calls per day — most of which involve questions about using v-Go, Grimes said. That's a far cry from the "thousands and thousands" of calls help desk staffers used to get, he added.

The USPS has been able to deploy the Passlogix software without modifying any applications, Otto said, noting that he assigned just one IT technician to work on the project full time and another part time.

Otto estimated that it would have cost $15 million to $25 million to modify the USPS's internal applications for a homegrown single sign-on approach. He declined to disclose what the USPS paid for v-Go SSO but said the deployment will cost less than $200,000.

In the past, single sign-on software required IT managers to write scripts for the applications being supported, Penn said. That led many users to curb the scope of projects, he added. But the rollout at the USPS "should really be a wake-up call to organizations that are struggling with password management," Penn said. **47188**

BEA Lays Out Plans for Diablo App Server

BY JAMES NICCOLAI

BEA Systems Inc. aims to help users reduce their application downtime and cut the cost of integration projects with the next major release of its WebLogic Server software, due in the first half of next year.

Code-named Diablo, WebLogic Server 9.0 is due for beta release in September, with the final release slated for the first half of 2005, said Andrew Littlefield, a senior director of product management at San Jose-based BEA.

Diablo will let users upgrade and patch applications — as well as the application server itself — without having to take their systems off-line, he said. That feature is important for businesses that need the highest levels of availability, such as banks.

Users will be able to load and test a second instance of their applications on their application servers and keep the first instance running after they go live, in case they need to migrate back quickly. They will initially be able to do this only with Web applications, however; support for message-driven and rich-client applications will come later, Littlefield said.

PROJECT ALCHEMY
BEA rethinks the browser for mobile workers:
QuickLink 47172
www.computerworld.com

"The plus about Diablo is that they are realizing that BEA operates in a universe of many other systems, and taking down an application server for updates or even applying patches is not an option for companies looking to WebLogic as a reliable part of their infrastructure," said Ron Schmelzer, an analyst at ZapThink LLC in Waltham, Mass.

The upgrade will support XML Beans 2.0 and several other new standards, including J2EE 1.4, WS-Reliable Messaging, WS-Addressing and the Security Assertion Markup Language.

"We don't see many usage cases where you need [IBM's] MQ or Tibco. We want you, out of the box, to be able to use WebLogic Server as a composite applications framework, without needing to buy additional messaging or bus products," Littlefield said.

Schmelzer said he found that curious, given BEA's usual position that its products augment, rather than replace, existing infrastructure software for building service-oriented architectures.

"They should stick to the story of BEA working well with all the existing systems and not pushing to have WebLogic replace any that are in use," he said. **47217**

Niccolai writes for the IDG News Service.

Continued from page 1

Microsoft

the timetable that the software maker set in October 2002. The old plan called for five years of mainstream support and two years of extended support. Under the updated policy, there will be a minimum of five years of mainstream support followed by five years of extended support.

"It is very welcome news. The big challenge we face is the logistical issue of upgrading 30,000 devices across more than 5,000 locations. It is a huge undertaking," said Ron Cook, vice president of technology, strategy and operations at RadioShack Corp. "When we have to do an upgrade solely due to the product ending its support life rather than technical reasons, it is a big expense. The extra support time will allow us to schedule upgrades for the right reasons."

But the new mainstream and extended support policy will apply only to software released during the past five years, said Peter Houston, Microsoft's senior director of servicing strategy. He said that he is not aware of any exceptions being made. He also noted that the new plan won't cover Windows NT 4.0 Server or Exchange 5.5. The extended support period for those two products is due to expire at the end of this year.

The mainstream support phase provides for no-charge incident support, support for warranty claims and hot-fix support, as well as paid per-incident support and support charged on an hourly basis. Extended support essentially includes the paid options — with the exception of security hot fixes, which are still free during that phase.

"Since their 10-year support does not include anything I am running, it really is very useless to me," said David Curran, manager of IT at CE Franklin Ltd. in Calgary, Alberta. He said 60% of his company's Windows servers run NT, including those with Exchange 5.5.

Some customers who have yet to migrate off older products may consider paid extension options from Microsoft or third-party vendors, unless they decide to run the products unsupported.

Several users said they have been forced to keep older versions of Windows and other Microsoft products as a result of application dependencies involving software built by third-party vendors.

However, Houston said older products are "not as serviceable" due to advances in software development technologies and methodologies. Houston added that products shipping eight to 10 years ago were designed well before many of the most serious security-threat models had surfaced.

"We have been working with customers for quite a while to get them to migrate off of NT because we have concerns over our ability to provide security for NT 4," he said. "We believe that NT 4 has reached the point of architectural obsolescence."

Houston said Microsoft "would be sending the message that we thought we could secure" NT 4 if the company retroactively applied the new 10-year support policy. "We believe that would not be responsible for us to give that false sense of security," he said.

The Next Step

Several users expressed support for Microsoft's decision, announced at the Tech Ed 2004 conference here, and noted that they have been working to complete migrations off of NT Server.

"For us, information security is more important than extending the NT life cycle," said Bob Dutile, an executive vice president in IT at Cleveland-based KeyCorp. "We prefer working off a more secure core code base and concur with Microsoft that replacement of NT has been the superior option. We expect to continue to lower our cost of managing patch administration as we complete our replacement of NT."

"While it would be better for them to extend it to the 10 years that they are for everything else, I understand their concerns around security," said Diane Bunch, senior vice president of information services at the Tennessee Valley Authority. She said the TVA has migrated 70% of its NT servers to Windows 2000 and is working on the rest.

Some users questioned Microsoft's rationale. Jon Dell'Antonia, vice president of IT at OshKosh B'Gosh Inc. in Oshkosh, Wis., said he found Microsoft's explanation "curious, [given] the amount of patches and holes exploited in the current products." He added that although NT probably is less secure than newer Windows versions, it's also rare that viruses target it and older desktop operating systems.

Dell'Antonia said it would have been preferable if Microsoft had extended support for NT. His company has 600 cash registers running NT Workstation and 150 stores running NT Server. On the other hand, he said, it's no shock to see support end, since Microsoft is merely "doing what they said they were going to do."

Dennis Callahan, CIO at The Guardian Life Insurance Company of America in New York, said he has no quibble with migrating the company's NT servers, considering the aging operating system's "obvious" security weaknesses.

But Callahan added that he finds Microsoft's "willingness to extend support to fix their security bugs for a fee to be inconsistent with both the newly announced policy and their stated reason for not extending the new policy retroactively to NT." **47207**

COMPARING THE OLD AND NEW

DURATION OF MAINSTREAM SUPPORT
Existing policy: Five years
New policy: Minimum of five years

DURATION OF EXTENDED SUPPORT
Existing policy: Two years
New policy: Minimum of five years

MINIMUMS
Existing policy: None
New policy: Mainstream Support is the greater of five years or two years after the "N+1" release ships. Extended Support is the greater of five years or two years after the "N+2" release ships.

Microsoft Unveils Team System for Visual Studio

SAN DIEGO

The newly unveiled Team System addition to Microsoft's upcoming Visual Studio 2005 release will represent substantial change for users of prior versions of the development product.

Never before have they had access to development, design and testing tools built into a single product. The Team System is intended to foster better collaboration among architects, developers and IT professionals.

"We've seen a lot of isolation and disconnect," said Theresa Lanowitz, an analyst at Gartner Inc. She added that Team System should help users who are building service-oriented applications, which tend to require greater architectural effort.

Several developers expressed interest in the Visual Studio Team System. "It eliminates some of the hassle of going back and forth between developing the software, deploying it and keeping track and managing all the different tasks and testing it," said Andia Henries-King, an application manager in clinical systems at Otsuka Maryland Research Institute Inc. in Rockville, Md.

She said she does a little modeling now but expects to do more once those capabilities are built into Visual Studio. "You use different products, and sometimes they don't all work together," Henries-King said. "But having it all in one place makes it a lot easier."

Victor Stuart, an Indianapolis-based business solutions analyst at Sallie Mae Inc., said it would be helpful to "flush out" testing scenarios while working in the integrated development environment.

"It would save time, and it would prevent us from forgetting things that we need to do," he said. "When we develop an application, we have to go back and figure out what places to check. You could possibly do that as you went along in the development process, as opposed to having to remember everything or make notes in a Word document or Notepad."

Also at its Tech Ed conference here, Microsoft launched the 2.0 version of Web Services Enhancements (WSE), a free add-on for Visual Studio .Net and the .Net Framework. The new edition features support for the WS-Security specification, which was finalized earlier this year by the Organization for the Advancement of Structured Information Standards.

WSE 2.0 also supports early versions of several Web services specifications, including WS-Policy, WS-SecureConversation, WS-Trust and WS-Addressing. Microsoft and other vendors are working on those technologies, but they have yet to be turned over to a standards body.

Furrukh Khan, a professor of electrical and computer engineering at Ohio State University, said his development team uses WSE fully aware that some specifications may change. But as a tester of WSE, he has seen changes every month and has found that it takes only three to four hours to move to a new version.

"The gains outweigh the costs," Khan said, noting that WSE reduced the amount of work developers needed to do to build 13 Web services for the Ohio State University Medical Center. "WSE comes out of the box with many security assertions implemented."

Microsoft also released a technical beta of the Office Information Bridge Framework, integrated tools that developers can use to connect Office to other systems using XML and Web services.

– Carol Sliwa

SHARP

Digital Document Security and IT: Everything you need to know.

Q: What are the most significant digital copier security issues?

A: Various copier print controllers are actually servers that queue and permanently store multiple document files, providing administrator access to the documents. At a minimum, most digital copiers retain the last document processed; some even retain multiple documents totaling hundreds of pages. Others redirect print jobs when the printer is busy or jammed, making "denial of service" attacks possible.

Q: How does Sharp protect the network interface?

A: The Sharp Ethernet card allows administrators to restrict access and disable unnecessary protocols. With this network card, the Sharp digital copier is essentially protected by its own firewall.

Q: How can you be sure that security products actually perform as claimed?

A: The Common Criteria program—administered by the U.S. National Security Agency and the National Institute of Standards and Technology—evaluates security solutions. Products that are validated under the program meet security levels consistent with ISO 15408 methodology.

Q: How can Sharp improve IT security?

A: Sharp offers print privacy solutions designed to restrict unauthorized personnel from seeing confidential materials. Copier access can be controlled and monitored, while documents retained in printer/copier/scanner/fax memory are immediately cleared to eliminate unauthorized access.

sharpusa.com

be sharp

©2004 Sharp Electronics Corporation.

Torvalds Proposes Tighter Tracking for Linux Kernel

Move could resolve ownership questions

BY ROBERT McMILLAN

Linux creator Linus Torvalds has proposed changes to the kernel development process that would make it easier for Linux kernel developers to respond to questions regarding source code ownership such as those raised by The SCO Group Inc. in its multibillion-dollar lawsuit against IBM.

In an e-mail sent May 22 to the Linux kernel mailing list, Torvalds proposed that kernel developers begin certifying that the code they contribute is entitled to be included in the Linux kernel. He also suggested a technique for "signing off on patches" that would better track which developers had handled source code contributions.

That idea won the backing of Open Source Development Labs Inc., which last week announced its support for the proposed changes to the kernel-submission process.

Under that process, "contributions to the Linux kernel may only be made by individuals who acknowledge their right to make the contribution under an appropriate open-source license," the OSDL said in a statement. "The acknowledgement, called the Developer's Certificate of Origin, tracks contributions and contributors. The DCO ensures that appropriate attribution is given to developers of original contributions and derivative works, as well as to those contributors who receive submissions and pass them, unchanged, up the kernel tree."

All contributors to the kernel will be asked to sign off on any submission before it will be considered for inclusion, the OSDL said. The Beaverton, Ore.-based group also plans to launch an educational campaign for developers and users about the DCO and the new submission process.

TORVALDS: Plan may be in effect for development of the Linux 2.7 kernel.

Torvalds' plan, now the subject of discussion among kernel developers, could be adopted in time for the development of the Linux 2.7 kernel, Torvalds said in an e-mail interview. "I think we're going to do it, although realistically it probably won't be all up and running until maybe a couple of months from now," he said.

Torvalds himself has been subpoenaed as part of the SCO vs. IBM lawsuit [QuickLink 42849], and while he acknowledged that SCO's claims provided a "big impetus" for the changes, he said the move was also designed to reassure Linux users and stakeholders who aren't involved in the kernel development process. "People who don't understand how I interact with the people I work with literally feel better just having it down more as a documented process," Torvalds said.

The proposed changes will make it easier for companies that contribute to the Linux kernel to standardize their development processes and "will placate some CEOs and CTOs waiting for the outcome of SCO's legal claims against IBM," said Stacey Quandt, an analyst at Santa Clara, Calif.-based Quandt Analytics.

However, Torvalds' plan doesn't address questions that executives may have about code that has already been contributed to the Linux kernel, Quandt said. "This limitation will still leave some senior executives on the sidelines, potentially beyond the outcome of SCO's case," she noted.

SCO claims that the Linux kernel illegally includes Unix System V code. The Lindon, Utah-based company has released a number of snippets of code, all of which have been analyzed in depth by the open-source community.

The documentation process would make it easier to debunk similar claims in the future, Torvalds said. "One of the reasons for this is that 10 years from now . . . we'll have explicitly documented what we now basically take for granted," he said. **47164**

McMillan writes for the IDG News Service. Computerworld's *Ken Mingis contributed to this report.*

HP, Others to Sell Appliances With Microsoft's ISA Server

Firewall products will compete with Cisco's

BY JORIS EVERS

Taking aim at security appliance vendors, Microsoft Corp. last week said that hardware makers will sell its forthcoming Internet Security and Acceleration Server 2004 software preinstalled on their devices.

Hewlett-Packard Co., Celestix Networks Inc. and Network Engines Inc. will be the first hardware makers to offer appliances based on the ISA Server firewall, virtual private network and Web cache product, Microsoft officials said. The devices will compete with appliances sold by Check Point Software Technologies Ltd., Cisco Systems Inc. and others.

HP plans to start selling the ProLiant DL320 firewall, VPN and caching server running ISA Server 2004 in the third quarter. The product will cost $3,000 and will be aimed primarily at midsize companies and organizations in the public sector, said Rick Fricchione, an HP vice president.

Fremont, Calif.-based Celestix plans to start selling its MSA4000 firewall, VPN and caching appliance in the third quarter for $2,495. Canton, Mass.-based Network Engines said it will offer a firewall for Microsoft's Exchange Server e-mail product but didn't announce pricing or availability.

Celestix's MSA4000

ISA Server is designed to help users protect Microsoft applications, such as the Exchange e-mail server, Internet Information Services Web server and SharePoint collaboration tools. ISA Server offers application filters for these and other Microsoft products.

Both Microsoft and HP expect the appliances to be used as an application-specific second layer of defense when installed in large organizations and as the only firewall product in smaller ones.

ISA Server 2004 Standard Edition will cost $1,499 per processor and will ship in the third quarter. An enterprise edition is due by year's end. **47163**

Evers writes for the IDG News Service.

* Trends in Proprietary Information Loss Survey (ASIS 2002). ©2004 Sharp Electronics Corporation.

How secure is your digital information?

Protect your information with the Data Security Kit from Sharp. Financial facts, personnel records, customer lists: networked copiers/printers process sensitive information every day. Unfortunately, their hard drives can also be accessed via the network, contributing to $60 billion worth of information theft every year.* To protect this weak link in your corporate security, we've created our Data Security Kit. It's the first copier and printer protection to be validated by Common Criteria, a government-sponsored program, and it's available only with our Digital IMAGER™ series of copiers/printers. Sharp's Data Security Kit. Enhanced information protection at your fingertips. sharpusa.com/security

Common Criteria

SHARP

····· be sharp

MARYFRAN JOHNSON

Big Brother IT

I ALWAYS READ e-mail-monitoring stories with a squeamish surge of discomfort at the very idea of it all. Although, as a manager, I understand the corporate motivation behind the escalating spread of technologies used to track employee activities online. In fact, in this week's "Information Highway Patrol" story on page 28 [QuickLink 45790], we've covered many of them.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

There's a professional football team that's worried about protecting its brand from "inappropriate" online behaviors. There's a fitness center hoping to boost employee productivity by restricting Web use to certain health-related sites. There's a medical facility intent on conserving network resources by monitoring every e-mail, instant message, chat session and keystroke.

Yet the practice of e-mail monitoring evokes in me a feeling akin to that classic anxiety dream where you're at the prom wearing only your underwear but desperately pretending nobody else notices. Just act normal, you tell yourself.

Which is what we all do on e-mail, our e-home away from home. We communicate freely, making smartass remarks, exchanging gossip, spouting opinions, unwilling or unable to stop ourselves from being ourselves. Sometimes, when I'm sending a note that's particularly sensitive, I'll employ a couple of dorky features in Lotus Notes, marking it "confidential" and checking the box that says "prevent copying." Any serious techie would snort beer through his nose laughing at the ease of bypassing such features. So I know it's pointless.

Technologically, content monitoring is getting easier to do but more complex and expensive to manage. Strategically, today's business and regulatory climate demand audit-worthy efforts to safeguard information. Legally, there's no question that companies not only have the right to monitor employee e-mails but also the duty to ensure that IT resources aren't being used for illegal purposes such as harassment or intellectual property theft. Many companies are careful to remind employees that there's no workplace right to privacy.

What worries me about Big Brother IT isn't just the thankless nature of employee monitoring but the ultimate futility of it. Enterprises are becoming more porous every day, with as many people working remotely as within company walls. Where does work life end and private life begin when the boundaries between them are continually in flux?

Resentment about being tracked everywhere we click is growing, not diminishing. And this hornet's nest shouldn't be dropped in the laps of IT managers. It belongs to HR, which unfortunately happens to be the one department IT people do their best to avoid. Not a good plan when it comes to this mess.

"It's a question of setting expectations of how much of a problem the technology will solve and how much has to be addressed by more creative, thoughtful evolution of organizational culture," says Danny Weitzner, a privacy expert and the World Wide Web Consortium's technology and society domain leader. He notes that e-mail monitoring is merely the tip of an iceberg of technologies (such as proximity cards with RFID chips) that will be collecting "phenomenal amounts of information" about us all — for purposes that remain unclear.

"IT people are not good at making these judgments on filtering policies," Weitzner points out. "The best place to work that out is not when you're upgrading your network infrastructure."

He's right, and I wonder how many companies are still thinking technology first and HR policies last. Where will that leave IT? Out patrolling the information highway with no backup.

47176

DAVID MOSCHELLA

Users Are Taking the Lead in IT

OVER the past several years, few IT industry developments have been covered by the media as eagerly as Wal-Mart's efforts in RFID and McDonald's and Starbucks' support for Wi-Fi. Much of this interest stems from the simple fact that most people prefer to read and write about things they actually know something about. Most stories about the projects of IT customers are a step or two away from our daily experiences, which makes them feel somewhat less real and compelling.

But there's also a deeper, more important attraction at work. These stories are telling us that something in the technology business is changing. The establishment of major new information technologies has nearly always been a vendor-led process. But with RFID and Wi-Fi, it seems clear that it's customers who are taking the lead. This is indeed newsworthy.

DAVID MOSCHELLA is global research director at CSC Research and Advisory Services, a Computer Sciences Corp. company. Contact him at dmoschella@earthlink.net.

Look back at the evolution of the key technologies we work with today. Who did most of the initial promotion, who drove the standards process, and who tried to set the timetable for the marketplace to move forward? Overwhelmingly, IT vendors took the lead on these types of issues. But can you name any major RFID or Wi-Fi suppliers? Most of us can't, but even the general public seems to know what's happening at Wal-Mart, Starbucks and McDonald's.

Ultimately, the establishment of a new technology is about leadership, risk-taking and doing whatever is necessary to help it reach critical mass. This is what IT vendors are financially motivated to do, and it's what they stay up at night worrying about. That's why it's so easy for them to slip over the line into hype. The pressure on them to promote and succeed is often relentless.

But isn't this exactly what is happening now with Wal-Mart? The company is becoming synonymous with the commercial use of RFID in the same way that PalmOne has been with PDAs, or Microsoft with tablet PCs. This means that if RFID technology proves to be immature, if partners resist or if key deadlines are missed, it's Wal-Mart that will take the media heat and lose credibility, just as Microsoft does when projects such as Longhorn stretch into the indefinite future.

From a broader industry perspective, the key question is whether this shift from supplier to customer leadership is limited to these isolated cases or is part of a wider trend. The evidence suggests that it's the latter. Look at the role that Amazon is playing in Web services, or the way RosettaNet and others are moving forward on the next generation of supply chain standards.

For decades, customers have complained that IT vendors hype their products and deliberately build in self-serving levels of incompatibility. They have accused vendors of everything from greed to incompetence and dishonesty. But these same customers will soon find out whether they can do the job any better themselves. If they can't, today's mostly friendly media coverage will surely turn sour. **46982**

VIRGINIA ROBBINS

Keeping Replacements On Track

IT WAS a great day for a bike ride. I planned a short one, out of the neighborhood and over the railroad tracks. The tracks are no longer used, but for some reason, probably related to the expense, my town hasn't removed them.

Off I went, down the road, over the railroad tracks, around the corner and then — a bus. I needed to be on the other side of the tracks — quickly. Swerving, I turned back across the rails. In slow motion, I saw my front wheel slide across the rail, into a rut in the asphalt, and stop. Just before I fell, I thought: This is going to hurt.

It wasn't the first time old infrastructure has caused me pain. Why is it that old equipment seems to die only after you identify the need, design a solution and get the budget approved, but never after the newer, more reliable stuff is installed?

VIRGINIA ROBBINS is CIO and managing director at Chela Education Financing in San Francisco. Contact her at VRobbins@chelafin.org.

Before Y2k, you could be certain that there was old equipment somewhere in your organization, living long past its depreciation schedule, serving a few mid-size clients or a small but profitable program in the accounting department. Its function never provided enough value to justify replacing the equipment. The old stuff remained part of your infrastructure, just useful enough to be declared an "exception to standards." Eventually, it would start to die and you could execute your replacement plan.

You did have a plan, didn't you?

Thank goodness for Y2k. Not only was all of the old equipment identified and documented, but we were also working in the best interests of our companies when we replaced it. Those little date tests suddenly put all those exceptions to standards at the top of the replacement list. Finally, all that old, about-to-die equipment was gone.

I only wish railroad tracks were date-enabled.

Between Y2k and the ensuing need to support dot-com initiatives, I've gotten used to a more modern infrastructure. However, as time passes, I'm anticipating requests to make exceptions to standards.

In today's do-more-with-less post-dot-com world, it's hard to justify replacing older infrastructure items that aren't broken, are still fully supported by their manufacturers and are virus- and worm-free. Given a choice between spending scarce investment dollars on projects to build sales volume or to help operations become more efficient, replacing older equipment is a low priority.

Yet there's hope. It's our job to align technology efforts in support of business needs and to advocate for technology improvements that enable business change. Older equipment increases risk and limits opportunities, which justifies some attention and expense. So you outsource some of the functionality and use new technologies in other projects when appropriate. Whatever is left over goes back into the three-year plan. Then you regularly measure the old equipment's reliability and wait.

You do have a plan, don't you? **47062**

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site:
www.computerworld.com/columns

READERS' LETTERS

Open-Source Is Right for Web Sites

KUDOS to Weather.com ["A Sunny Forecast for Open-Source," QuickLink 46065]. Instead of outsourcing jobs to other countries, we should be "outsourcing" expensive technology in favor of lower-cost solutions. The use of Linux with Apache Tomcat is a powerful and economical solution. I am sometimes bewildered that companies use expensive technology for their Web sites when open-source options offer reliable, robust and secure software at a lower cost.

Brad Simonin
Network Web engineer, Las Cruces, N.M.

Clarifying GNOME

I HAVE followed the development of the Linux desktop for close to 10 years, having fled from the atrocity that was Windows 95. I was struck by what appeared to be an inaccurate statement in Nicholas Petreley's (deservedly) critical piece on GNOME ["Living Down to a Low Standard," QuickLink 46629]: "GNOME grew out of the desire to free people from Microsoft's ability to dictate what users can or can't do."

That is true only in the broadest sense. GNOME was a reaction against the licensing (and programming language and tool kit choice) adopted by the KDE programmers when they first released the K Desktop Environment. While recognizing some value in a more "modern" desktop manager, many programmers were disgusted that the Q Toolkit wasn't licensed under the GPL and that it was written in C++.

GNOME was born to offer a GPL'd alternative to the "heretic" KDE project. The GTK (Gimp Toolkit) was drafted for development because it was GPL'd and written in C (the one true language, according to some). Until Troll released a GPL version of the Q Toolkit, the GNOME project was favored for idealistic reasons by some and received support from Red Hat and others. Unfortunately, GNOME never lived up to the noise its supporters made and was always playing catch-up to KDE technically.

I use Fluxbox for my window manager. Simplicity, coupled with low overhead and a few real innovations, matters more to me than all the glitz of either KDE or GNOME.

Chuck Morrison
Platteville, Colo.

PETRELEY'S rant against GNOME belongs in an obscure blog, *not* in a major publication. He doesn't grasp the freedom of choice provided by GNOME and KDE. I prefer GNOME, but many Windows users who don't have time to learn new technologies prefer KDE.

To be honest, I usually use xfce4. Like GNOME, it uses the more advanced GTK libraries, but xfce4 is faster than GNOME. However, I am glad to have the choice, and I respect others who make a different choice. I don't want to get into the perpetual flame war between users of C and users of C++. However, it should be noted that the bug-infested software from Microsoft uses C++. Also, GTK is simpler to learn and to use than Qt. Furthermore, Petreley should consider that the Gimp is built with the GTK libraries for which he has such contempt.

Frederick R. Hanhisalo
CTO, Hiraeth Celtic Goods, Duxbury, Mass.

Preventing Worms

I BELIEVE Frank Hayes has been listening to Chicken Little too much ["Sinister Sasser," QuickLink 46707]. My home LAN is protected with a hardware firewall (even dial-up users can benefit from a hardware firewall), and I regularly review its logs for evidence I can forward to my provider in case it wants to block the attacks at its borders.

Each PC also has a software firewall that challenges every new outbound connection attempt, as well as regularly updated antivirus and malware/spyware packages, each owned by the administrator. Every Windows PC has been hardened by disabling some of the easiest-to-disable exploits, installing alternative browsers and e-mail clients, making them the default clients and making every user account a non-administrator. And on those PCs that might visit unscrupulous Web sites, a hardened version of Linux is installed. The Linux system is similarly protected, accessed only by nonroot users, and the root account is locked down tight.

A little preventive work and safe surfing practices can make even the meanest worm nothing more than a five-liner on the back page.

Larry Williams
Information security administrator, Fiserv EFT, Portland, Ore.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

For more letters on these and other topics, go to
www.computerworld.com/letters

EMC²
where information lives

Fr: backup-to-tape

To: backup-to-disk, all before lunch

EMC CLARiiON® CHANGES THE WAY YOU THINK ABOUT STORAGE. Introducing the CLARiiON Disk Library. To your applications, it looks and acts just like a tape library. But the performance, high availability, and simplicity are pure disk. You'll be ready to go in less than an hour. Shorten backup times by up to 30 percent. And speed recovery by up to 90 percent. To learn more, visit www.EMC.com/backup. Or call 1-866-464-7381.

EMC² VELOCITY² PARTNER

Find an authorized EMC Velocity² Partner at www.EMC.com/velocity.

EMC,² EMC, CLARiiON, and where information lives are registered trademarks of EMC Corporation. © 2004 EMC® Corporation. All rights reserved.

QUICKSTUDY

RSS

This XML-based format allows third parties to republish Web site content and provides a mechanism for keeping the syndicated content up to date. **Page 30**

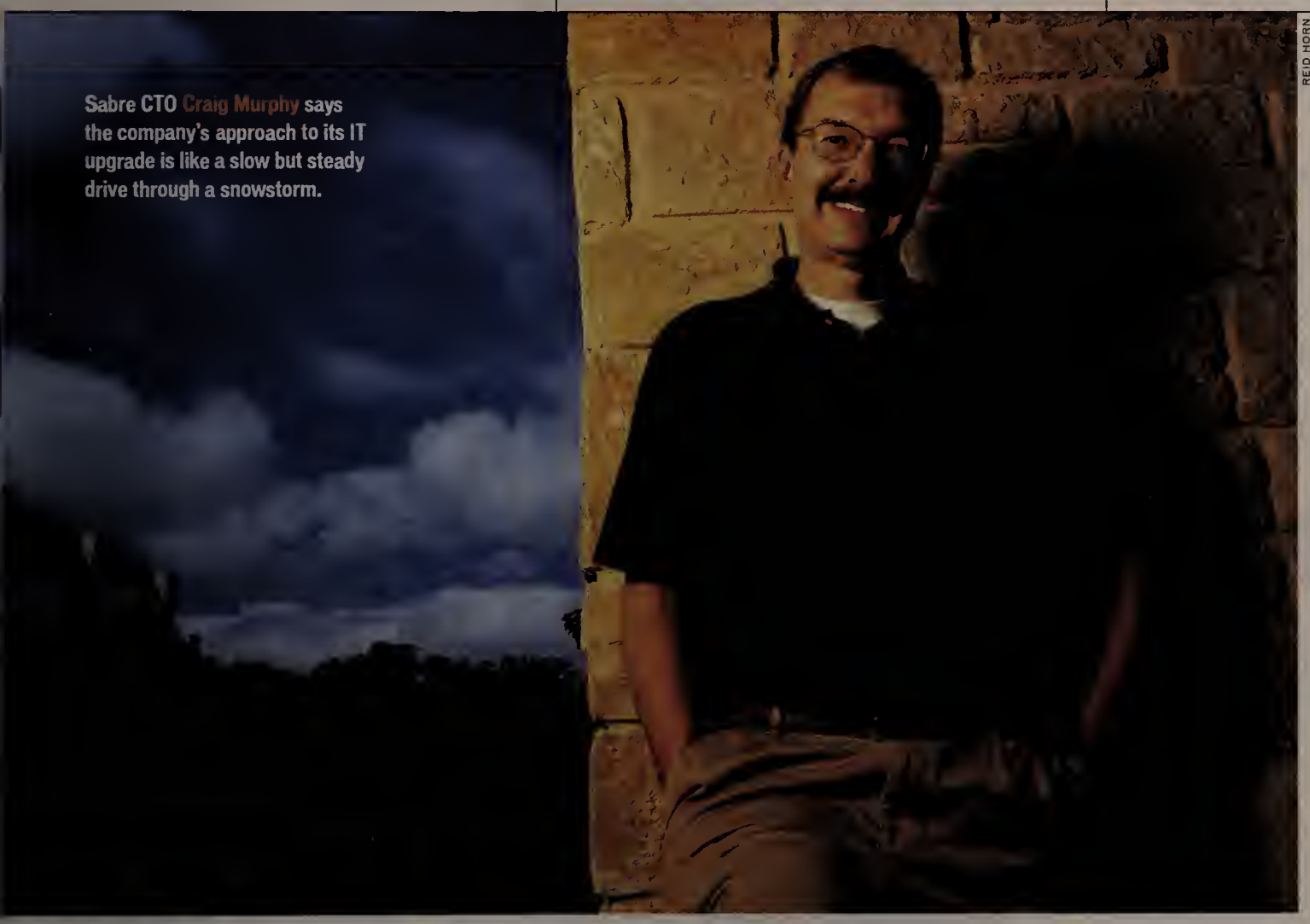
SECURITY MANAGER'S JOURNAL

Worm Lays Waste to IT's Defenses

Unpatched servers in the engineering labs and inadequate controls over inbound VPN connections lead to a Sasser disaster at Mathias Thurman's company. **Page 31**

Information Highway Patrol

Concerns over productivity and liability are driving companies to adopt tools that monitor employee use of e-mail and the Internet. **Page 28**



Sabre CTO Craig Murphy says the company's approach to its IT upgrade is like a slow but steady drive through a snowstorm.

REID HORN

Sabre FLIES TO Open Systems

The air-travel software company has reinvented its 25-year-old mainframe applications with modern languages and commodity hardware. **By Gary H. Anthes**

Sabre Holdings Corp., the air-travel software company, has an ambitious set of objectives for the remake of its "shopping engine," a 25-year-old mainframe application with 10 million lines of assembler code that processes more transactions per second than the New York Stock Exchange.

In order to rein in escalating processing costs and offer customers more options, Sabre is completely overhauling the software used by airlines, travel agents and passengers to find and book flights. In stages, Sabre is replacing its old mainframe assembler code with modern languages running on cheap commodity computers and open systems, including Linux.

Sabre's Global Distribution System, which used to be called the Customer Reservation System, has roots all the way back to 1960. It consists of three air-travel subsystems, one each for shopping (which includes pricing), booking and fulfillment (day-of-travel operations). The Air Travel Shopping Engine, which accounts for more than 50% of Sabre's total data processing load, handles the shopping and pricing. If you're on Travelocity.com (a Sabre company) surfing for the best schedules and fares between New York and Washington, you're using ATSE.

Sabre likens its big system project to

Continued on page 24

Nokia for Business

Profiles in Business

Every business is a team of individuals. And if you can maximize teamwork, you'll maximize productivity—which is where Nokia comes in. Everything we make, from advanced messaging devices to secure mobile connectivity offerings, is engineered to give your team the power to work faster and smarter. The payoff can be immediate: better decision-making,

The Nokia 6820 Messenger

Torturous Trevor the Technoholic

Mr. "I Have Security Issues"

R.O. Ida, The Chief Financial Officer

Working-from-Home Walter

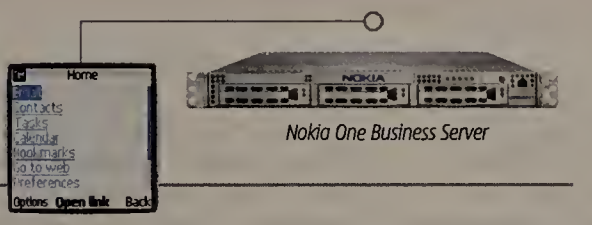
©2004 Nokia. Nokia Connecting People and Nokia 6820 are registered trademarks of Nokia Corporation.
Other company and product names mentioned herein may be trademarks or trade names of their respective owners.

Mobility: Teamwork

#1 How to be more competitive, more productive, and, uh, more in sync.

improved coordination, faster growth. And because Nokia supports a variety of access methods and devices, your people can work on their own terms while taking care of business demands. Learn more today. And give your team—and your business—the advantage of more mobility. Anytime, anywhere, and on virtually any device.

Nokia security appliance



Nokia One Business Server

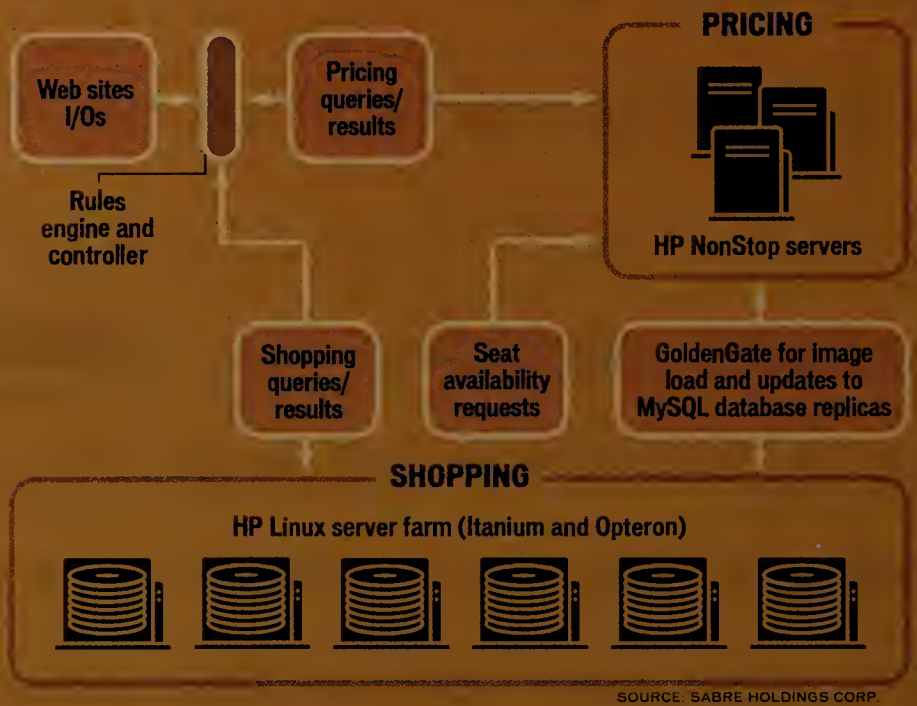
Learn how to mobilize your team and increase business productivity. Download "The Anytime, Anyplace World" white paper at >>nokiaforbusiness.com

Metro Mel *Time Zone Tim* *The "Never in the Office" Girl*

NOKIA
CONNECTING PEOPLE

Sabre ATSE Services Architecture

Air travelers and travel agents generate 12 million shopping and pricing requests per day. The shopping – browsing among routes and schedules – takes place on 45 four-CPU HP Linux servers. Once a flight has been selected, its actual availability and price are determined on one of 17 fault-tolerant 16-CPU HP NonStop servers, which hold some 79 million fares and 6 million schedules.



SOURCE: SABRE HOLDINGS CORP.

Continued from page 21

driving through a snowstorm. "Some people want to go 70 mph and don't worry about the ditch," says Craig Murphy, chief technology officer at Sabre in Southlake, Texas. "Then there are those who go 2 mph, drive on the shoulder and white-knuckle the steering wheel. But what we want to do is go 25 mph through the snow inexorably toward our destination, which is more capability, open systems, a services architecture, distributed components and far lower cost."

Forces for Change

Three forces hugely increased the processing demands on Sabre systems over the years. After airfares were deregulated in 1979, travel agents began shopping for both price and schedules, not just schedules. Then, in the late 1980s, travel agents began using PC-based automated search tools that continuously scanned Sabre databases for the lowest fares. Finally, in the mid-1990s, consumers on the Internet joined travel professionals in shopping for flights. Sabre's processing economics took an ugly turn as the "look-to-book" ratio soared. Looking for the best schedules and fares generates data-processing costs but no revenue; it isn't until someone books a flight that anyone makes money.

Airlines added to the pressure by asking for myriad new options and features, many of which could be added to the old assembler code only with the greatest of difficulty, if at all. Adding a new rule, such as a discount for a Saturday night stay, could cost $1 million, Murphy says. Armed with a $200 million research and development budget, the $2 billion company relentlessly tuned its systems, but processing costs continued to climb. Sabre's IBM Transaction Processing Facility (TPF) mainframe environment in Tulsa, Okla., went from 1,000 MIPS in 1995 to more than 10,000 MIPS in 2001.

To the Rescue

But, Murphy says, while the look-to-book ratio skyrocketed and pricing and scheduling options proliferated, three technological forces came to the rescue: Moore's Law, open systems and ubiquitous standards. Moore's Law — which states that the amount of computing power available per dollar doubles every 18-24 months — enabled Sabre to assemble a scalable farm of powerful servers built around cheap commodity processors and huge memories. Open systems enabled Sabre to move from the proprietary and expensive TPF environment first to Unix and now to Linux. And standards such as Common Object Request Broker Architecture, the Lightweight Directory Access Protocol and Java enabled Sabre to move the shopping engine to a distributed and extremely flexible services architecture.

Sabre is now well past the midpoint of its four-year migration project. Simple North American flights are on ATSE, but complex trip types and international flights aren't yet. Sabre will move the booking and fulfillment functions to a similar architecture in the future.

Murphy says the cost of the project will exceed $100 million, but he won't be more specific. Results so far have been encouraging. "We sold the project on the basis of reducing total cost of ownership by 40%," he says, "I actually think we'll surpass that. Running a query — Dallas to Chicago, say — on the new system is about 80% cheaper."

And, he says, developers are getting 100% productivity gains because they are working in higher-level languages — Java and C++ — and because the application architecture is so much easier to debug, change and enhance than the old mainframe assembler code.

Finally, airlines are getting the ability to put in new options and features quickly and cheaply. Last year, Sabre announced SabreSonic, a suite of services that enable airlines to tap into Sabre systems and databases in order to offer passengers new services, such as streamlined airport check-in.

"Changes are much easier to do, and much less expensive," says Gianni Marostica, president of Sabre Airline Solutions. "This allows us to implement things airlines think of on the fly."

Sabre's new ATSE architecture is based on the processing characteristics and reliability requirements of its major functions, with three modules connected by a LAN. A front-end rules engine

IT'S HARD TO BELIEVE that a system that now routinely processes 15,000 transactions per second and keeps track of 79 million airfares consisted in the 1950s of a roomful of Teletype machines, telephones, card files and clerks.

In a chance meeting in 1953, American Airlines Inc. President C.R. Smith and IBM salesman R. Blair Smith came up with a better idea: what would become the first real-time business application of IT.

Sabre, as the computerized reservation system came to be known, was completely overhauled after airline deregulation in 1979 greatly expanded travelers' choices. During the 1980s, Sabre became IT's poster child for "competitive advantage." People inevitably pointed to Sabre if they wished to prove that IT made companies not only more efficient but also more competitive. Indeed, in 1984, American's competitors sued the airline, saying the reservation system gave American's flights an unfair priority on the displays seen by travel agents.

Now the venerable system is getting yet another remake, this time to an architecture that would have been dismissed as impossible just 10 years ago – commodity systems using microprocessors and the open-source Linux operating system.

1957

IBM and American Airlines team up to form SABRE, the Semi-Automatic Business Research Environment. It's based on SAGE, the Semi-Automatic Ground Environment – the first major system to use interactive, real-time computing – which IBM helped develop for the military.

1960

The first Sabre reservation system is installed in Briarcliff Manor, N.Y., on two IBM 7090 computers. It processes 84,000 telephone calls per day.

1964

The Sabre system, and its nationwide network, is completed at a cost of $40 million and becomes the largest commercial real-time data-processing system in the world. It saves American Airlines 30% on labor costs.

on 16 two-way Hewlett-Packard Co. Linux servers acts as a master controller for the system, coordinating services and I/O across the LAN.

The master database, or "database of record," sits on 17 fault-tolerant 16-CPU HP NonStop S86000 servers. That's where pricing occurs. Each of the 272 processors has 4GB of memory and runs the NonStop Kernel operating system under the Unix-like Open Systems Services layer. Data from the NonStop boxes is replicated continuously by GoldenGate Software Inc.'s data synchronization software to MySQL AB databases on a server farm containing 45 four-way HP rx5670 servers running Linux.

The Linux servers, where shopping occurs, have 32GB of memory each and run 64-bit Intel Itanium processors. The farm may eventually scale out to more than 100 servers, Murphy says.

The idea is that pricing — which is necessary for booking — must have ultrahigh, if relatively expensive, reliability. Shopping, which often doesn't lead to a booking and which is more demanding on CPUs and memory, can be offloaded to powerful but relatively inexpensive servers. Murphy cites Sabre's exploitation of commodity Linux servers in a "horizontal farm" as perhaps the most noteworthy innovation in the ATSE.

At the beginning of the project, Sabre planned to put everything on NonStop, but shopping was soon migrated to Unix and finally to Linux as Sabre gained confidence in the architecture. Now, Sabre is further refining the server farm by moving to a "flower" arrangement in which the MySQL database replicas are on 64-bit Itanium boxes at the center of each flower, surrounded by "petals" consisting of cheaper, 64-bit Advanced Micro Devices Inc. Opteron machines. Each Itanium box is then a database server to its attached Opteron application servers, which can be configured more economically because they don't require the memory and resources needed for the database.

"The idea is, you can't make the application cheap enough or fast enough," explains Scott Healy, vice president for enterprise systems at Sabre. "Customers don't like waiting, and expanding into the Internet just means we get more and more volume we don't get paid for." He says it remains an open question as to just what functions are best left on the ultrareliable NonStop machines and which might safely be moved to the cheaper server farm.

Healy says he's proud of his developers' ability to move the shopping and pricing algorithms to the new system without losing performance. "Think of what the legacy environment has — fast processors, flat files, assembler language. What do you have going on your side? You've got lots of memory, and we can manage it," he says. Queries run a bit faster now, even though processing is more complicated because of the many new options, fare types and the like, he adds.

"We have to be in an environment where our cost, two years from now, is half what it is today on a per-unit basis," Healy says. "The air-shopping problem will be more complex, there will be more Internet users and there will be more [users] internationally. The only way we can meet that demand is by riding Moore's Law."

And, Murphy notes, by continuing at 25 mph through the snowstorm.

46873

SABRE BY THE NUMBERS

THE COMPANY

- 2003 sales: $2.05 billion
- Market share, worldwide travel reservations: 35%
- Value of travel-related products sold through reservation system: $80 billion
- Airlines hosted: 90
- Travel agency locations served by Sabre Travel Network: 56,000

THE SYSTEM

- Fare changes processed: 1.2 million per day
- Reservation messages processed (peak): 15,000 per second
- Shopping, pricing and availability transactions: 48 million per day
- Shopping choices: 79 million fares and 6 million schedules
- Database size: 70GB (100GB with international)

SYSTEM OVERHAUL OBJECTIVES

- Reduce total cost of ownership 40%
- Increase developer productivity 100%
- Reduce time to change fare rules by 75%
- Improve access to trained workforce by moving to common industry standards
- Become more responsive to airlines' changing needs

CULTURE CLASH

Sabre has to find common ground between its veteran programmers and younger coders:

QuickLink 46923
www.computerworld.com

SHOPPING LIST

Sabre Holdings IT managers Craig Murphy and Scott Healy have this to say about the company's key technology choices:

- **NonStop technology from Hewlett-Packard: "We picked it for its reliability and stability and because it has an open system interface. HP is committed to it. It will be the centerpiece [of ATSE] for the foreseeable future." – Murphy**
- **Linux from Red Hat Inc.: "It is more reliable than Unix in relatively homogeneous environments. It's perfect for horizontal scale without a lot of complexity. We've come to believe that Linux is here to stay, and open-source is an important component in the commoditization of the computing stack." – Murphy**
- **MySQL database from MySQL AB: "We evaluated several database managers, and MySQL was really the winner from a performance standpoint, and it was certainly the lowest cost." – Healy**
- **64-bit Opteron processors from Advanced Micro Devices: "Cheap, powerful and x86-compatible. AMD is very clever." – Murphy**
- **Data Synchronization from GoldenGate Software in San Francisco: "They have expertise in NonStop and a willingness to work with us and innovate solutions." – Healy**
- **The overall architecture: "The big innovation is in the horizontal scaling and data replication to the server farm, and in how we are able to match the environment to specific types of workload. It's cheap, and it's reliable." – Healy**

1972
The Sabre system is upgraded to IBM S/360 and moved to a new consolidated computer center in Tulsa, Okla. It is used for all of American Airlines' data processing facilities.

1976
The Sabre system is installed in a travel agency for the first time, triggering a wave of travel automation. By the end of the year, 130 locations have the system.

1984
Sabre introduces BargainFinder, the industry's first automated low-fare search capability. Competitors sue American Airlines, saying its Sabre system unfairly gives its flights priority on the displays seen by travel agents. American agrees to discontinue any preferential treatment of its flights.

1985
Sabre introduces easySabre, allowing consumers with PCs to tap into the Sabre system to make airline, hotel and car rental reservations.

1989
On May 12, the ultrareliable Sabre system goes down for 12 hours. The cause: a latent bug in disk-drive software that destroys file addresses.

1996
Sabre launches Travelocity.com.

2000
AMR Corp., the parent of American Airlines, spins off The Sabre Group as an independent company.

2001
Sabre Holdings Corp. begins migrating its massive, 25-year-old mainframe system for air-travel shopping and pricing to HP NonStop servers and Linux servers.

Middleware is Everywhere.

Can you see it?

2

RAKSBANK

3

Middleware | **Key**

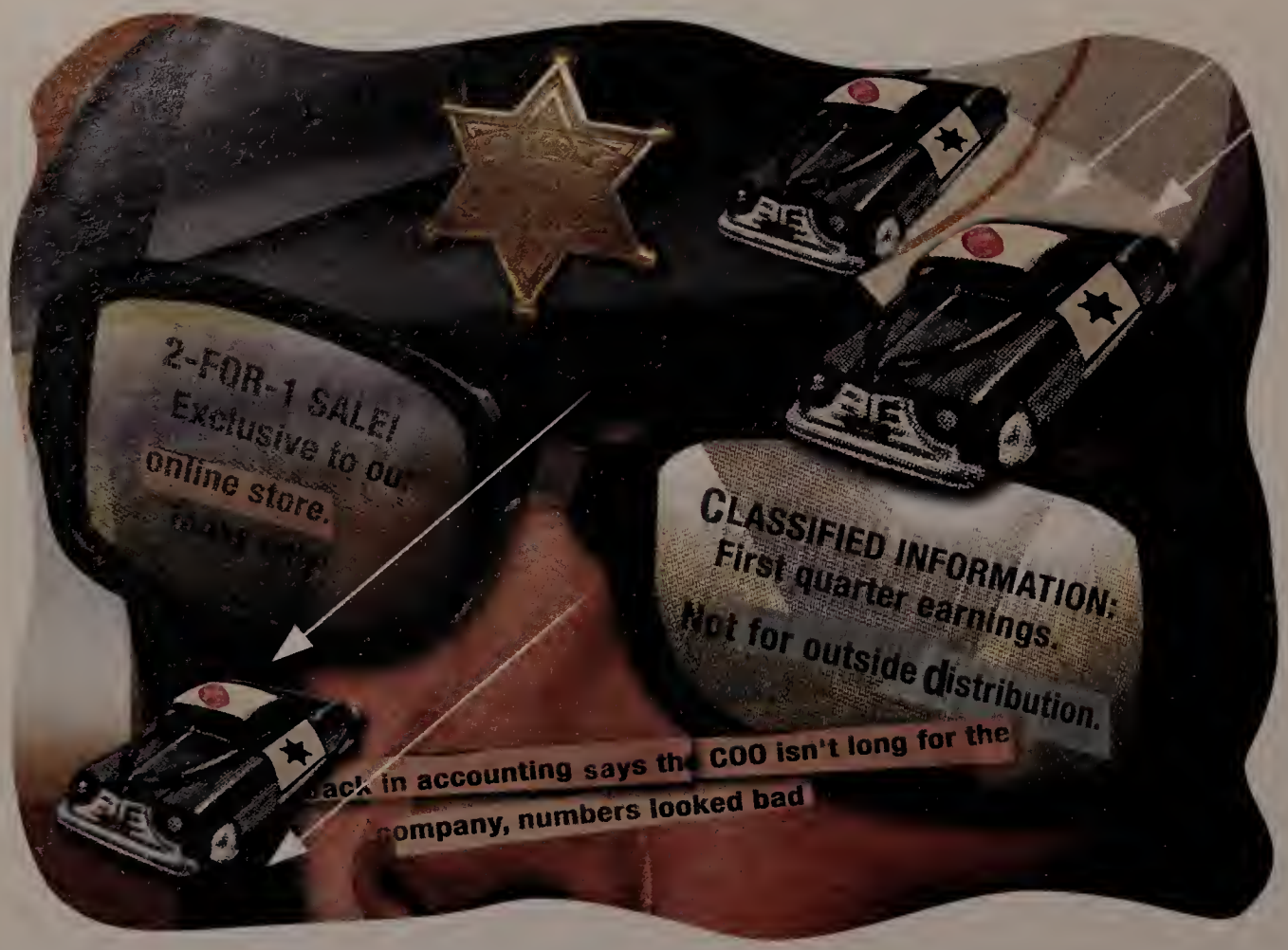
1. **Increased ATM activity detected instantly.**
2. **Identities confirmed securely.**
3. **Online banking increases dramatically.**
4. **IT resources optimized dynamically.**
5. **Bank serves customers easily.**

MIDDLEWARE IS IBM SOFTWARE. Powerful software like Tivoli® and WebSphere.® And it's at the heart of solving what analysts call the key issue of 2004: automation. IBM middleware is open and can deliver it all at a pace to match your needs. It anticipates problems, responds to change and optimizes resources. And it all leads to meeting business goals. That's ON DEMAND BUSINESS.

Learn more about middleware and IBM's leadership role in automation at **ibm.com**/middleware/automate

IBM, the IBM logo, Tivoli and WebSphere are registered trademarks or trademarks of International Business Machines Corporation in the United States and/or other countries.
© IBM Corporation. All rights reserved.

IBM
4
1
RAKS BANK
5



LARRY GOODE

INFORMATION HIGHWAY PATROL

To guard vital information and maintain productivity, companies are using software to enforce policies that define acceptable employee use of the Internet and e-mail. BY LINDA ROSENCRANCE

IT'S 11 A.M. — do you know what your employees are doing?

Well, you do if you're like the increasing number of employers that are concerned about the security of their computing environments as well as the productivity of their employees.

In fact, nine out of 10 companies check up on their employees' online activities while they're at work, according to a recent survey of nearly 200 businesses conducted by the Center for Business Ethics at Bentley College in Waltham, Mass. That's because more and more liability risks and security threats are originating from inside organizations rather than outside.

Employees who surf the Internet, check personal Web e-mail, use corporate e-mail for personal messages, send instant messages to friends and family and engage in peer-to-peer file sharing can open up a company to myriad vulnerabilities.

These nonbusiness uses can result in the loss of employee productivity, legal liability, decreased network availability and security problems, according to a report released in January by Meta Group Inc. in Stamford, Conn.

In order to protect their businesses, employers are turning to technology to monitor their employees' Internet use.

Chicago-based Tennis Corporation of America uses a proxy appliance from Blue Coat Systems Inc. in Sunnyvale, Calif., to stop viruses from infecting the network via backdoor Web channels such as IM systems and Web e-mail, says Chuck Walker, TCA's senior network administrator.

Blue Coat's ProxySG appliance also gives TCA visibility into the Web traffic traversing its network and allows the company to block IM and deny users access to specific sites, he says.

A Different View of Access

"What we've done is changed the way we view employee access to the Internet," Walker says. "Because we're a fitness center, our employees can go to sports sites, but we've pretty much turned off everything else. You start taking a look at what some of the costs are for people being out browsing on the Internet. It's costing the company money, lost productivity, lost systems. There's a lot of things that are tied to it."

In addition, employees who were using the Internet indiscriminately ran the risk of unknowingly installing spyware or adware on their machines and, in the process, decreasing corporate bandwidth, Walker says. (To read more about spyware, see "Spyware Sneaks Into the Office" at QuickLink 45702.)

The Blue Coat Proxy appliance sits at the network gateway, behind the firewall, and acts as an interme-

diary between client and Web server communications, bringing total visibility to Web-based user activities and allowing enforcement of an enterprise's network policies, says Steve Mullaney, Blue Coat's vice president of marketing.

"We've seen productivity increase because you don't have personal trainers sitting down at their computers now and browsing the Internet — now they're forced to go out and deal with the members on the floor," Walker says.

The Kansas City Chiefs football team turned to Vericept Corp.'s Network Abuse Management Corporate Solution when the franchise was looking for a tool to help it deal with Internet activity that fell outside of its acceptable-use policy.

"The concerns were about potential problems arising from the inappropriate use of e-mail or the Internet. We viewed this as protecting the brand," says Richard McOsker, the Chiefs' information systems director, who declined to go into further detail. "We were looking for a tool that would perform the monitoring and reporting without day-to-day human intervention."

9 OUT OF 10

companies check up on their employees' online activities while they're at work, according to a recent survey of nearly 200 businesses conducted by the Center for Business Ethics at Bentley College in Waltham, Mass.

Monitoring Missteps

The Chiefs' software, based on Vericept's VIEW (Vericept Intelligent Early Warning) technology, is installed on Linux-based servers and plugged directly into a computer network.

Using sophisticated linguistic and mathematical analysis, the product passively monitors all TCP/IP traffic — Internet, intranet, e-mail, chat, IM, P2P, FTP, Telnet and even bulletin board postings — that falls outside of a company's appropriate-use and security policies.

If someone does step outside the boundaries, the abuse is logged, copied and reported, says Brett Schklar, senior director of product management at Englewood, Colo.-based Vericept.

"We saw a marked and immediate decrease or elimination of the inappropriate use after [the product] had been installed one week," says McOsker.

In order to document and archive everything its employees were doing on their PCs and the Internet, Summit Center, a medical facility in Flagstaff, Ariz., installed Spector CNE (Corporate Network Edition), from SpectorSoft Corp. in Vero Beach, Fla.

"Internally, we had no ability to monitor or track items coming through our firewall back to the end user," says Daniel Anderson, Summit's chief administrative officer. "SpectorSoft was the one package that enabled us to grab screenshots on an interval that we chose, as well as catch all e-mail activity, instant messaging, chats and keystrokes. It showed evidence of time, date stamps and the logged-on user."

In addition, by taking screen snapshots, Spector CNE creates the digital equivalent of a surveillance tape so an employer can see the exact sequence of everything its employees do on the computer, says Doug Fowler, SpectorSoft's president.

"We store the files on a Dell PowerVault data storage unit, so the files are always available for me to view," Anderson says.

Anderson recently discovered that someone was accessing an illicit Web site at night from a computer in the clinic area. This was particularly troubling because Summit employees don't work at night, he says. Ultimately, Anderson tracked the activity to the company's janitorial staff.

"I ran the basic screenshots as a video clip, and I was able to save that as an AVI file and burn it to CD," he says. "Then I had a meeting with HR people, who need to be involved, and [the janitorial staff], put in the CD, and when they start to deny it, all I have to do is hit Play and it speaks volumes."

Protecting Productivity

When Choice Medical Supplies in Bellevue, Wash., transitioned from terminal-based user technology to PCs for its employees, management was concerned about a drop in productivity.

So the company installed Websense Enterprise, an employee monitoring tool from San Diego-based Websense Inc.

"We had one particular employee who was abusing the Internet," says Scott McCoskery, technical director at the medical supplies company. "After we installed Websense, the Internet usage plummeted overall, basically out of fear."

Websense Enterprise, built on an Internet filtering platform, allows employers to manage employee Internet access, block peer-to-peer file sharing, block IM attachments, manage IM use, reduce bandwidth by managing streaming media, protect against spyware and malicious mobile code and prevent employee hacking, says Kian Saneii, vice president of marketing and business development at Websense. The product filters at multiple points — on the network, at the gateway and on the desktop — to provide protection against emerging threats, he says.

Websense is based on pass-through filtering technology, which requires all requests for Web pages to pass through an Internet control point such as a firewall, proxy server or caching device. Websense Enterprise is integrated with these control points and checks each request to immediately determine whether it should be allowed or denied. All responses are logged for reporting purposes, but outlawed sites are blocked automatically.

Websense works in conjunction with a master database of URLs that fall into one of 90 categories and over 6 million Web sites representing more than 1.5 billion Web pages in more than 50 languages, according to Saneii.

Employers can configure Websense to monitor or block sites in each category. Administrators can allow users to continue surfing or defer access to sites in a particular category until a specific time, like before or after work or during lunch.

"We had an acceptable-use policy in place, but it was antiquated because we were a mostly terminal-based company," says McCoskery. "At the same time we brought Websense on, about two years ago, we updated our policy."

About every six months, employees receive an e-mail notification, which they are required to sign, that reminds them of the policy, he says.

"The effect that Websense has on our employees just by the fact that it's there does far more than the fact that it actually blocks sites," McCoskery says. "Having the guard standing at the door, even though he's not saying anything, is enough to keep people from doing bad stuff." **45790**

WHO SELLS THESE PRODUCTS?

For a list of companies that offer products that employers can use to monitor employee Internet use, visit our Web site:

QuickLink 47078
www.computerworld.com

EMPLOYEE RIGHTS AND RELATIONS

THE LAWS GOVERNING monitoring of employee e-mail and Internet use are nebulous at best, but experts agree that companies should, at the very least, notify workers that they may be monitored.

"It's only fair for the employer to notify the employee that they may be, or are, monitored," says Beth Givens, director of the Privacy Rights Clearinghouse in San Diego. "Notice is the most basic of rights that employees should have when the employer is using any kind of monitoring. But legally, they don't have to [notify employees], except in the state of Connecticut."

Lewis Maltby, president of the National Workrights Institute in Princeton, N.J., says that because employee monitoring is sometimes a "necessary evil," employers shouldn't make that monitoring more intrusive than it needs to be.

"When it comes to Web site monitoring, employers don't have to spell out their policies to employees, although it would be nice if they did," he says. "What they should do is program their Web access policy into their Web access software, so the policy can be enforced. If they would manage Internet access instead of monitoring it, everything would be fine."

While she says she understands why employers need to monitor employees' use of e-mail and the Internet, Paula Brantner, program director of San Francisco-based Workplace Fairness, says the most successful way to deal with the issue is to articulate a very clear policy upfront and enforce it evenhandedly.

Lee Tien, staff attorney at the Electronic Frontier Foundation in San Francisco, goes a step further. "It's not enough to rely on policy; [employers] need to have every employee sign a consent form, giving them permission [to monitor]," he says. "It's dangerous for employers not to have that kind of protection."

– Linda Rosencrance

RSS

DEFINITION

RSS is an XML format for syndicating Web content. A Web site that wants to allow other sites to publish some of its content creates an RSS document and registers the document with an RSS publisher. A user with a Web browser or a special RSS client program automatically receives notice of and links to new content on designated sites and can use it on a different site.

BY RUSSELL KAY

FOR SEVERAL YEARS, my morning information drill has gone something like this: turn on the monitor, then quickly check my e-mail to see if there's anything that needs immediate attention. That out of the way, it's time to fire up the Web browser and check those URLs that I go to every day. Some are news sites, some are technical, others are discussion forums related to current projects, and some reflect my interests.

If I'm busy and don't get to visit every site — or perhaps none at all for several days — then I'm likely to get so far behind that I can't usefully catch up and have to reconcile myself to perhaps having missed something important.

This is a routine familiar to many knowledge workers. If you're lucky, you may have only a half-dozen such sites to check each morning. Or you might have to look at 40 or 50, depending on the work you're doing. It's a time-consuming, if important, chore, and even bookmarks, favorites or tabbed browsers (such as Mozilla Firefox) don't speed up the process much. You still have to go to each page, load it, remember how it's formatted and find where you were the last time. There has to be a better way.

The solution is an interesting notion called RSS, which is an outgrowth of work done at Netscape Communications Corp., culminating in 1999's My.Netscape.com. (What does RSS stand for? That's a simple question with several different answers. See sidebar below.) RSS is an XML-based format originally designed for sharing headlines and other Web content. It allows computers to automatically fetch and understand the information users want, to track and personalize lists they're interested in.

While HTML is designed to present information directly to users, RSS is an automation mechanism for computers to communicate with one another. RSS feeds can let you know if a site has been updated recently.

RSS forms an important underlying technology for many weblogs and portals such as My Yahoo. Commercial sites noticed how RSS turbocharged the distribution of content, and many news sites, including those of *The New York Times*, the BBC and CNN, have created RSS feeds to increase the visibility of their content. RSS solves many of the problems webmasters face, such as increasing site traffic and the difficulty of gathering and distributing news. RSS can also serve as the basis for distributing other types of content.

How RSS Works

RSS starts with an original Web site that has content available. The Web site creates an RSS feed, sometimes called a channel, that's available just like any other resource or file on the Web server. The site registers this feed in the form of an RSS document, with a directory of RSS publishers.

QUICK STUDY

Once an RSS feed is available on the Web, any computer can regularly fetch it. The most common type of program to do this is called an aggregator, or news reader. Such programs enable users to collect information from many different sources of their own selection with a single, automated application that checks RSS feeds regularly and highlights new material. **46266**

Kay is a Computerworld *contributing writer in Worcester, Mass. Contact him at russkay@charter.net.*

RSS PROGRAMS

■ **NewsGator**
NewsGator Technologies, Highlands Ranch, Colo.
www.newsgator.com
Integrates RSS feeds directly into Microsoft Outlook

■ **NetNewsWire**
Ranchero Software, Seattle
www.ranchero.com/netnewswire
For Mac OS X users

■ **Feedreader**
www.feedreader.com
Freeware for Windows

■ **NewzCrawler**
ADC Software
www.newzcrawler.com/index.shtml
For Windows

■ **Radio UserLand**
UserLand Software Inc., Danville, Calif.
www.radiouserland.com
For Macintosh and Windows

For a more complete list of RSS programs, visit our Web site:
QuickLink a4570
www.computerworld.com

Are there technologies or issues you'd like to learn about in QuickStudy? Send your ideas to quickstudy@computerworld.com

To find a complete archive of our QuickStudies, go online to
computerworld.com/quickstudies

RSS: THE NON-STANDARD

"RSS" is an umbrella term that includes at least seven versions of at least two different but parallel formats, all separated by political problems. The original RSS (RDF Site Summary), Version 0.90, was designed by Netscape using the Internet Engineering Task Force's (IETF) Resource Description Format specification as a format for building portals of headlines from news sites.

Netscape soon decided that this was too complex and proposed a simpler version, dubbed RSS 0.91 (the initials now standing for Rich Site Summary). Shortly thereafter, Netscape lost interest in portal-making and dropped the project.

An independent developer of weblogging products, UserLand Software, adopted 0.91 as the basis for its products, and RSS (now an acronym for Really Simple Syndication) became quite popular in and beyond the blogging community.

In 2000, a new group wanted to expand the RSS format to include more data, going back to the original principles and RDF syntax of RSS 0.90, using XML namespaces and focusing on modularity and extensibility. This RSS-DEV group published a proposed RSS 1.0 specification draft. And then the arguments started.

UserLand's founder, David Winer, wasn't involved in designing this new format and disagreed strongly with the direction it chose; he favored even further simplification. Winer suggested that the RSS-DEV group pick a different name for its work to resolve the conflict, but the group chose to stick with RSS 1.0. After that, UserLand continued to develop the original branch through Versions 0.92, 0.93 and 0.94. In 2002, Winer proposed RSS 2.0. The RDF group then proposed a 3.0 specification.

So RSS 1.0 isn't a later version of 0.91, 0.92, 0.93 or 0.94, nor is RSS 2.0 a later development of RSS 1.0 – though all are descendants of Netscape's original Version 0.90. It's a confusing mess.

In 2003, in an attempt to get beyond the arguments – as well as to provide an extensible standard that would be vendor-neutral, clearly and thoroughly specified, and better suited to blogging and archiving – an IETF working group was formed to create a new weblog syndication format, called Atom (previously known as Pie). The first working draft of Atom is due to be published [illegible]

–Russell Kay

Worm Lays Waste To IT's Defenses

Politics, project delays and an ineffective response allow for a Sasser disaster. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

I WAS PLANNING to spend my week evaluating disk encryption products before the Sasser worm breached our defenses. What's more frustrating than the worm, however, is the fact that proposed projects that could have prevented it have been bogged down for a number of reasons.

My team and I are almost done selecting a patch management product and have all but decided on PatchLink Update from PatchLink Corp. in Scottsdale, Ariz. We run a wide range of servers and operating systems, and PatchLink seemed to work with the majority of them during our evaluation.

Meanwhile, we continue to deal with frustrating patching problems. The W32/Sasser attack is the latest example.

Sasser takes advantage of a previously known vulnerability within Microsoft's Local Security Authority Subsystem Service, which helps manage security and authentication for Windows networking. Had we applied the appropriate patches when they were released, my company might have avoided the worm.

As it was, we first realized that something had gone wrong when the IT help desk received a spate of calls about arbitrary system shutdowns and references to a dialog box indicating an "LSA Shell" problem. At about the same time, network bandwidth usage spiked.

We turned to our in-house Snort intrusion-detection system expert, who quickly associated the traffic with Sasser. This worm attacks by looking for vulnerable machines through TCP Port 445, which is used for Windows networking. Once Sasser finds a vulnerable host, it spreads itself by installing a file transfer protocol server on Port 5554 and leaves Port 9996 open for commands to execute. It then modifies several registry entries and services, causing the system shutdowns. Finally, it spreads by scanning other systems for vulnerable hosts and directing those to the FTP server port to download the malicious code.

The impact of Sasser on my company was substantial. Help desk calls started coming in from all of our hub sites as well as from overseas and remote users with corporate Digital Subscriber Line connections. Although we knew we had to find every infected system, we lacked the time and resources to locate them all. So, to buy time, we asked the network engineering group to reconfigure the access control lists on our network devices to block Ports 5554 and 9996. We use Mountain View, Calif.-based Solsoft Inc. to centrally manage many of our ACLs. Unfortunately, we also have many network devices that it doesn't manage, and we spent several hours visiting every one of them.

> **In retrospect, we should have anticipated all of this, perhaps as part of an incident response protocol.**

After the ACLs were updated, network degradation decreased, as did the speed at which Sasser was spreading. Now we had to identify the machines that had Port 5554 or 9996 open.

Back to Port

My company has several Linux servers that we use to conduct automated scanning. We wanted to scan every server in the company, but I had just asked the network engineers to block all Port 5554 and 9996 traffic. The scanners couldn't work, so I had to go back to the engineers and ask them to once again modify every router, firewall and switch. They weren't happy, to put it mildly.

In retrospect, we should have anticipated all of this, perhaps as part of an incident response protocol. Instead, we implemented the ACL changes while operating in firefighting mode, never even thinking about the need to scan the servers. After several more hours spent changing the ACLs back, we were finally able to scan the servers. Dozens were infected, and most were in the engineering labs.

The security situation with our engineering labs has been a point of contention for some time. These servers typically aren't attended to as diligently as are our production servers, and unpatched servers are common. We recognized this problem months ago, and I've been trying to separate the lab machines from the rest of the corporate network. We've had some success, but some groups continue to resist.

We're also looking at using FortiGate, from Sunnyvale, Calif.-based Fortinet Inc. This all-in-one device includes real-time antivirus, firewall, virtual private network, and network intrusion-detection and -prevention services. We plan to place these devices at our VPN gateways to protect the company from users who gain access to the corporate network by way of our VPN concentrator. Many of those users have installed our VPN software on their home machines, and on several occasions, those PCs have introduced malicious code into the company.

We also want other methods to control this, such as restricting remote access to specific machines by their media access control addresses or by using public-key infrastructure. Or we could configure the VPN client to refuse to connect until required desktop virus and firewall software is installed and running.

Next week, we'll hold an interdepartmental meeting that includes a postmortem of the Sasser mess and try to improve the incident response process. We have work to do to get our infrastructure to the point where we can defend ourselves from the next threat.

But for every technology change we propose to address the problem, we must jump over a dreadful combination of cultural, business, resource and other hurdles before the company will implement them. Sadly, even the most sensible-sounding changes take time, so our inability to act quickly and decisively puts us at increased risk.

WHAT DO YOU THINK?

This week's Journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

Security Bookshelf

■ ***Network Security Assessment***, by Chris McNab; O'Reilly & Associates, 2004.

One of the surprises in reading this book is how quickly my current books on network security assessment have become obsolete. *Network Security Assessment* offers up-to-date information on the most commonly exposed and exploited areas of network security, as well as a comprehensive discussion on new tools and exploits.

The author methodically and thoroughly explains subjects ranging from common Unix and Windows vulnerabilities to perhaps lesser-known Oracle and Citrix issues. I found the chapter dedicated to general application security issues particularly useful. If you haven't reviewed what is state-of-the-art in security assessment lately, this title makes for a good reference.

– Mathias Thurman

WebShield Adds Content Filtering

Network Associates Inc. is adding policy-based Web content filtering to its WebShield line of security appliances, which offer antivirus protection, Web content scanning and optional antispam protection features.

With WebShield Appliance 3.0, administrators can create policies for users or groups and then monitor both inbound and outbound traffic to ensure compliance. Currently in beta testing, Version 3.0 is expected to ship in the third quarter.

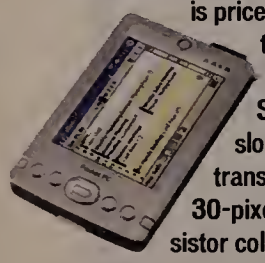
The Santa Clara, Calif.-based company also released its McAfee LinuxShield antivirus software for servers running distributions of Linux from Red Hat Inc. and Novell Inc.'s SUSE Linux.

The WebShield appliance starts at $1,700. LinuxShield pricing starts at $22 per user.

BRIEFS

Dell Introduces X30 Pocket PC

Dell Inc. introduced three handheld Pocket PCs based on Intel Corp.'s PXA270 processor. The Axim X30 comes in three versions. The $349 top-end model runs at 624 MHz, supports Wi-Fi and Bluetooth wireless technologies, and has a sync/recharge cradle and an extra battery. A $279 version runs at 312 MHz and includes dual-mode wireless and a travel sync cable. A nonwireless version of the Axim X30 is priced at $199. All three configurations have a Secure Digital I/O slot and a 3.5-in. transflective 240- by 30-pixel thin-film transistor color display and weigh 4.9 oz.



Intellectual Property Service Launched

Black Duck Software Inc. in Waltham, Mass., is making its intellectual property analysis and risk assessment tools for open-source software development available as a service. ProtexIP, a service designed for developers and attorneys or legal departments, uses a database to automatically recognize when any of thousands of open-source programs have been inserted into source code and informs users of potential licensing conflicts. Subscription pricing starts at $2,500 per year for developers and $25,000 annually for attorneys.

ILM Tool Debuts

Computer Associates International Inc. announced its first information life-cycle management product last week. BrightStor Document Manager creates metadata associated with every document and class of document and uses the metadata to track history, status and relationships throughout the document life cycle. The product is available now, with prices starting at $20,000 for a server supporting 50 users.

CURT A. MONASH

Not So Fast for Enterprisewide Analytics

SOFTWARE IS ENTERING the Age of Analytics. Buzzwords fly fast and furious: Predictive analytics. Enterprise reporting. Analytic applications. Sarbanes-Oxley compliance. BPM, CPM, EPM. Metrics and dashboards. Three key performance indicators, two turtledoves, a scorecard and a few decision trees.

And if there aren't enough for you already, it's time to get ready for the next blazing software industry buzzword: "enterprise analytics," a catchall term describing analytic technology deployed across a whole enterprise. Enterprises want to whittle down their list of analytics vendors. Business intelligence (BI) vendors are racing to offer soup-to-nuts enterprise analytics product suites, application software vendors are trying to beat them to the punch, and Oracle claims to have occupied the high ground for years. If "enterprise analytics solutions" catch on, just about everybody will benefit.

CURT A. MONASH is a consultant in Acton, Mass. You can reach him at curtmonash@monash.com.

Unfortunately, it won't be quite that easy. Very few organizations have ever deployed true enterprisewide analytics technology. Indeed, even the BI vendors themselves generally haven't rolled it out. And there are good reasons for this.

The major problems inhibiting enterprise adoption aren't in the technology itself, which on the whole is delightfully real and affordable. BI and other analytic technologies are much cheaper to buy and install than OLTP application suites. Recent BI-oriented advances in relational database technology make even huge data warehouses scalable. True, data integration and quality issues are often messy when you build or expand a data warehouse, and dealing with them isn't fun or cheap. But even when integrating analytical data gets expensive, it's usually still a lot cheaper than transactional application integration.

Instead, the main challenge is the one that stretched the adoption of transaction-processing applications across several decades: business process change. Enterprises employ people, and people generally don't like to change the way they do things.

Actually, the problem may be even worse than it has been for transaction-processing applications. Controlling and changing how your managers work is a lot harder than transforming the activities of your data entry operators, shipping clerks and other low-level transaction processors. If your CEO really hopes to create an enterprisewide culture of sober, rational, unbiased numbers-driven decision-making, that project could take decades.

There's another side to the problem: Many people just don't feel comfortable dealing with numbers. That's usually not a problem for MBAs or for engineers and other technically literate sorts. But too many other folks are instinctively resistant to anything that brings more mathematics into their lives.

Fortunately, none of this means that your organization can't introduce new and better analytical business processes. You just have to do it a chunk at a time. And there are several areas in which analytic technologies have already racked up success after success, transforming how enterprises do business. So I'll conclude on a happy note, by reviewing some of the areas in which the analytic technologies dream is being lived today.

Marketing executives have long been taught to test, test, test any element of a marketing campaign that they can. Over the past decade, sophisticated tools in data mining, profitability analysis and the like have taken marketing analytics to a whole new level. Success stories abound in a whole range of marketing-oriented industries: retail, consumer products, travel/hospitality, financial services, telecommunications and even charitable fundraising.

Vendors of corporate planning tools will tell you that they can transform your whole business planning process, with every line manager frequently and accurately updating corporate performance expectations. That transformation rarely happens. However, when these tools are given to finance and budget specialists, their work is changed for the better.

More generally, business processes of many kinds have been transformed by automated performance monitoring, in areas as diverse as manufacturing, service logistics, sales operations, recruiting and consumer loan performance. Sometimes the analytics are built into ERP or CRM systems, and sometimes they come from third-party BI tools. Either way, they're a big boost to profits and customer satisfaction.

Stakeholder reporting is a huge area of opportunity. Information self-service has transformed business processes, reaching all kinds of constituents: retailers' suppliers, credit card companies' sell-side customers and even citizens served by local governments. Meanwhile, regulatory compliance requires ever more careful analysis and reporting.

Finally, dashboards may be excessively hyped — but the reality is pretty cool too. Most of the benefits from analytic technologies over the years have come from shoving reports in people's faces until they discover, often serendipitously, useful facts about their business. Dashboards provide a much more enjoyable way of consuming the same information — especially if there's some pretext to include a clickable map — and wider dissemination of information dashboards can only lead to better-informed business decisions. **47140**

WANT OUR OPINION?

For more columns and links to our archives, go to **www.computerworld.com/opinions**

MANAGEMENT

Killing Time on IT Projects
Time is the bane of project managers. Here are some tips from project management veterans to help keep you and your team from wasting it. **Page 36**

OPINION
Time to Get Back to Basics
Sure IT projects are complex, but let's not get carried away, says Catherine A. Tomczyk. Most of what she needs to know to keep projects on track she learned in kindergarten. **Page 41**

Boutique Shopping
Specialized IT consulting firms can add deep experience and agility to IT projects. But there are risks if you choose to work with a niche firm. **Page 38**

End OF THE Affair

Taking outsourced IT functions back inside is tricky, but planning ahead can minimize the risk. By Alan R. Earls

ANDY GOODWIN

ELLEN BARRY (left), CIO of the Metropolitan Pier and Exposition Authority, the organization that runs Chicago's giant McCormick Place convention center, faced a problem when she came aboard in 2000. Networking and technical support services were being handled on an event-by-event basis by an outsourcer under a contract dating from the mid-1990s. As a result, every time a show came into the 2.2 million-square-foot facility, a new network had to be put in place from scratch, adding expense, complexity and risk for McCormick and its customers.

Barry, who had previously helped outsource a number of IT functions when she worked for the city of Chicago, decided to insource. She viewed the ability to meet the needs of exhibitors as a critical function for her organization, not something that should be passed to an outside vendor. Building capacity in-house would let her create a flexible infrastructure that could be adapted to each show's needs.

Although Barry says she didn't reckon on the tenacity of the outsourcer, which pulled every political string in the state to hang on to the job, she did prepare a

End OF THE Affair

thorough plan of action. Thanks to that planning, she managed the transition on schedule and without problems.

Barry isn't alone. Many IT organizations decide for a variety of reasons that an outsourcing arrangement just isn't working, and they pull those functions back inside. It's not a trivial undertaking. There are a host of challenges, not the least of which is the likelihood that your organization's knowledge base has probably eroded during the time the function has been outsourced. However, IT managers who have insourced say it can be done, with planning and resourcefulness.

Outsourcing Realities

Outsourcing is a tricky business, and the engagements don't always end well. A recent study by DiamondCluster International Inc. titled "2004 Global IT Outsourcing" reveals that more than a fifth of outsourcings by the survey's 182 participants in the previous calendar year ended prematurely. However, only a quarter of those dissatisfied with outsourcing bring the work back in-house, says Tom Weakland, managing partner at Chicago-based DiamondCluster.

"The odds are that if you outsourced it to begin with, it probably wasn't a strength," he explains. "Furthermore, it takes time to re-establish the organization and transition the outsourcer's best practices."

If you're considering pulling an outsourced IT function back in-house, be sure you fully understand your situation and have looked at all the issues. For starters, there's plenty of disagreement about what should validly trigger an end to an outsourcing deal.

A Last Resort

"Termination clauses should be invoked only in cases of egregious nonperformance," says Alex Kozlov, director of marketing at Compass America Inc., a consulting firm in Oak Brook, Ill. "The termination penalty should be stiff if the client walks away without cause."

But Paul Roy disagrees. "Reserve the right to terminate for convenience: mergers, acquisitions, changes in market," says Roy, a partner at Chicago-based law firm Mayer, Brown, Rowe & Maw LLP. "Usually there is a cost, but that can be anticipated and mitigated by taking over contracts, buying assets and hiring people so the supplier ends up less stranded by costs."

There is no right or wrong answer to the trigger question. Everything depends on what is spelled out in the outsourcing contract, so address these issues in detail, Roy says.

Before pulling the plug, make sure your strategy is sound. When Michael Palmer, CIO at Allied Office Products Inc. in Clifton, N.J., made a wholesale shift from outsourcing to insourcing in 2002, he used the transition as a chance to review his IT strategy.

"We had initially outsourced the entire Web development and maintenance piece, from soup to nuts, for about $2.5 million a year," he says. But the Web was becoming a crucial customer interface, and with a goal of generating at least a quarter of all company revenue through that channel, it was too strategic to outsource. In contrast, Allied chose to outsource billing of its 16,000 customers to a vendor with strong expertise and potential economies of scale in that area.

In Barry's case, insourcing led to a new networking strategy. "We totally redesigned the approach to networking and decided to add connections to the Hyatt hotel, which is also owned by [the Metropolitan Pier and Exposition Authority], and also the Navy Pier facility, three miles away," she says.

Insourcing veterans recommend considering the following issues:

- **Understand your existing outsourcing relationships,** not only on a contractual level but also, if possible, on a day-to-day level. Know what work is being done and how.
- **Compare your operations with others** to help determine the pros and cons of insourcing.
- **Understand your internal costs** so that you can make a reasonable choice between insourcing and outsourcing.
- **Realize the true costs of taking something back.** Many outsourcing arrangements involve off-balance-sheet transactions for things like hardware that you will need to replace.
- **Look inward.** It's critical to know what additional resources you'll need internally and what kind of management support you'll get. Will you need to hire more people? Will you get full support from above, or will you meet strong internal resistance? Barry's outsourcer appealed to the state legislature and other politicians in an attempt to halt the insourcing. But she had built an airtight case and got support from key people in her organization.
- **Convince employees that the insourcing will work,** and give them the right tools and training to succeed.
- **Build some wiggle room into the transition plan.** Don't commit to a specific deadline for shifting the work; make it a window of 60 to 90 days.

"You must find your own philosophy," says Palmer. "Ours is that if it touches the customer, it needs to be flexible." When dealing with an outsourcer, he says, that requirement for flexibility translates into a carefully crafted service-level agreement and "a well-defined exit lane" from the contract if it no longer fits Allied's needs. For example, low transaction volumes or changes in business strategy would pave the way for Allied to bring its outsourced functions back home. **46624**

Earls is a freelance writer in Franklin, Mass. You can contact him at alan@alanearls.com.

STEP BY STEP

Ellen Barry, CIO at the Metropolitan Pier and Exposition Authority in Chicago, successfully brought outsourced IT functions back in-house. She offers these tips for minimizing the risk of insourcing:

1. **Perform a detailed business analysis** of the costs and benefits of the proposed insourcing, including the strategic value of insourcing and the potential risk.
2. **Develop a detailed transition plan** defining effective processes for taking back each function. Use your best IT people for the plan and the transition.
3. **Work with internal IT professionals** to validate all assumptions, plans and risks.
4. **Consider employing the best of the outsourcer's staffers.** Bringing them over may reduce risk and reassure your business units.
5. **Look at the risks** associated with the role each of the outsourcer's staffers plays in the delivery of service through the transition. Make plans to minimize any potential for security breaches or service degradation.
6. **Include** the IT governance team, the business unit leads and senior management in the decision-making process.
7. **Keep the decision process confidential.** If the outsourcer becomes aware of a potential change before a decision is made, the relationship could be damaged – which can be particularly serious if you decide not to go through with the insourcing.
8. **Explain to the outsourcer** the reasons for the insourcing in detail and the need for it to continue to provide services through the transition. If your reasons for insourcing are strategic and the outsourcer has performed to expectations, provide assurances that its reputation will be upheld.
9. **Communicate** with internal customers about the decision and the plans for transition, and maintain close communication throughout the transition.
10. **Collocate** internal staff with the outsourcer's staff during the transition to make sure that all aspects of the service-delivery processes are understood and that the outsourcer will continue to work in good faith during the transition.
11. **Provide incentives** as appropriate to the outsourcer to minimize the anxiety over the contract change, and be sure that all terms and conditions of the contract remain in place until full transition occurs.
12. **Continually evaluate** each aspect of the transition until it's completed, focusing on any areas of risk. Keep all business units advised of progress.
13. **Stay focused** on the value of the opportunity despite the difficulties.

TERMINATION MATRIX

	Reason the customer terminates:					
	Convenience	Cause A	Cause B	Vendor acquired	Customer acquired	Force majeure
Vendor will provide transition services.	X	X	X	X	X	X
Vendor will pay customer's transition costs.		X		X		
Customer will pay vendor's demobilization costs.	X				X	
Customer will pay a termination charge.	X				X	
Vendor will sell the transferred assets to customer at a specified value.	X	X	X	X	X	X

Gregg Kirchhofer, a senior partner at Kirkland & Ellis LLP in Chicago, says the details of how an outsourcing arrangement terminates are as crucial as any part of the agreement. During contracting talks, he uses a comprehensive termination matrix to summarize and clarify the rights and responsibilities of both parties under various termination scenarios. The simplified and abridged adaptation above illustrates the concept.

HP Integrity servers are taking off, as are the companies using them.

Companies adopting HP Integrity servers, powered by industry-leading Intel® Itanium® 2 processors, are seeing remarkable gains in performance.

The momentum is building. One after another, companies are choosing HP Integrity servers. Leading software and technology partners such as BEA, Microsoft®, Oracle, SAP and Siebel Systems have embraced the platform as an industry standard. And with the ability to manage a mixed environment of UNIX, Microsoft® Windows®, Linux and OpenVMS, HP Integrity servers are fast becoming the ultimate consolidation tool. Demand maximum performance, reliability and cost-efficiency now, on a platform that will carry you forward into the future. Demand performance that's real-world proven, and get it—with HP Integrity server solutions.

See who's choosing HP Integrity servers and choosing results.

AIRBUS UK

COMPUSA

FIAT AUTO

THE KOEHLER GROUP

RAYMOND JAMES

intel inside ITANIUM 2

hp invent

To get the IDC white paper outlining the performance of HP Integrity servers with Intel® Itanium® 2 processors, go to hp.com/go/demandIntegrity12 or call 1-800-282-6672, option 5, mention code AQHF.

Intel, Intel Inside, the Intel Inside Logo and Itanium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation. ©2004 Hewlett-Packard Development Company, L.P.

KILLING Time ON IT PROJECTS

PETER FERGUSON

IT projects are notorious for coming in late. Here are some of the worst time-killers that project managers can stumble into – and how to avoid them. By Lucas Mearian

TIME. It's the bane of project managers. Despite all the advances in project management process and professionalism, too many IT projects still come in late. Project managers waste time by charging ahead too fast, communicating poorly or allowing their teams to get bogged down in stakeholder indecision, technical minutiae or business politics. But by planning, setting standards and making sure project team members are on the same page, you can avoid wasting time. Here are nine notorious project time-wasters and how to avoid them.

Rushing in. If you "save time" by skimping on analysis and design, you probably won't correctly define business requirements upfront, says Lois Zells, a project management consultant in Redondo Beach, Calif. This will come back to haunt you during testing, she says, when developers discover that they missed some important business need, or response time is seriously degraded because of a poor design. Then testing will take "10 times longer than it should," she says. The solution: Resist the temptation to shortchange analysis and rush into development. A rule of thumb for project managers is that for every hour of planning, you save three hours of work.

The life-cycle rut. Some project managers still use a "waterfall" or "phase-gate" life cycle, which is designed to yield fewer defects but draws out project time, says Johanna Rothman, president of Rothman Consulting Group Inc. in Arlington, Mass. Other project life cycles provide alternatives that reduce defects without affecting speed, she adds. Don't choose a life-cycle model just because it's the one you've always used. Look into alternatives that address the project at hand.

Poor communication. When projects get bogged down, it's often because of a lack of communication, says Mark Brooks, a project team leader at a large financial services firm that he declines to name. Team members may waste time on a problem if they don't know that another team member has the solution. To avoid this, Brooks set up a telephone bridge that remains open all day. The bridge saved the day recently when a hard drive controller failure on a backup production server threatened to halt a project. "But when everybody jumped on the audio bridge, we found out there was another server chassis in another part of the data center," Brooks says. The team transferred the backup hard drives into the new chassis and had a new backup server running in 45 minutes. The project continued on schedule.

Excessive research. Project teams can waste weeks sifting through industry white papers on products and architectures, says Kevin Gungiah, director of systems administration at The Weather Channel Interactive Inc. in Atlanta. Moreover, it's often hard to tell hype from reality. "I found there was a lot of marketing for what I wanted to do, but the solutions just weren't there yet," he says. All that research can be nearly useless anyway, since vendor labs can't replicate conditions in your data center, he says. It's quicker and more useful to call as many customer references as possible to see what their experiences with a product have been. Gungiah also recommends testing technologies on-site prior to purchasing them.

Untamed e-mail. Important e-mail messages exchanged among project team members can get lost amid the spam, wasting precious time. At the beginning of a project, Brooks establishes a standards team that creates a six-letter acronym to be used in the subject line of every e-mail that deals with the project. "That enables people to use the Outlook rules bar to look for that acronym and move it to a project folder," says Brooks. He also recommends including an action item in an e-mail title or in the first three lines of a message so it will show up in the preview page of Outlook. "That way, without opening their e-mail, they can see you want them to do work," he says.

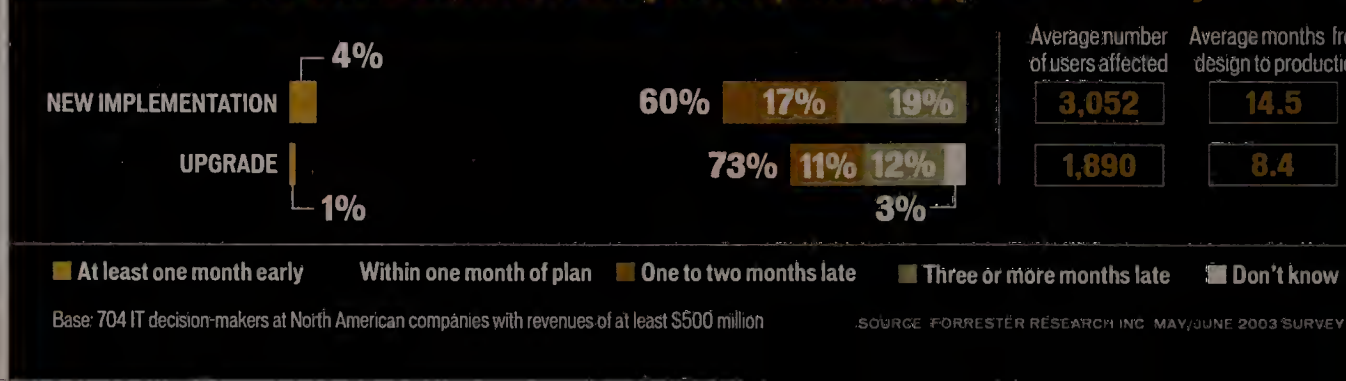
Indecision. Business stakeholders waste project time when they can't decide on issues ranging from technical standards to which worldwide offices must comply with an upgrade. "You're in the middle of a project, a business issue needs to be resolved, and everything stops," says Larry Sisemore, an international manager of systems development at FedEx Corp. in Colorado Springs. Although business decisions can be highly political and sensitive, "project managers need to be assertive" and push for closure, he says. When assertiveness isn't enough, contact the business manager who owns the project and tell him the delay could cost him the deadline, says William Telkowski, chief technology officer at J.P. Morgan Chase & Co.'s I-Solutions group. If the business manager cares, he'll make sure the problem is addressed, Telkowski says.

Obsessing. IT workers often get so focused on a problem that they lose track of time. "What was 'just a minute' drags on for a week or two," says Catherine Tomczyk, a project manager at First Data Corp. in Greenwood Village, Colo. The solution: "We put in our rules that if someone is stuck on a problem for more than eight hours, we escalate it and assign a buddy to help them," she says.

Between-meeting paralysis. When problems pop up the day after the weekly meeting, a week can go by before they're addressed, says Tomczyk. As the deadline approaches, she schedules 10- or 15-minute daily meetings with her project team to ensure that problems are addressed as soon as they're discovered.

Embellishment. Many developers just don't know when to quit, says Rothman. "[They] have a passion for excellence and will embellish or add more features than were originally planned for a project if they think they have more time," she explains. Rothman uses release criteria to define what "done" means so the team knows when to stop. For example, if a project's design calls for certain functions to be done manually, she clarifies exactly where the automation ends. **46803**

On-Time Rates for Major Corporate Application Projects



Base: 704 IT decision-makers at North American companies with revenues of at least $500 million

SOURCE: FORRESTER RESEARCH INC. MAY/JUNE 2003 SURVEY

Reboot your neural network.

"intellectually engaging."

—Financial Times

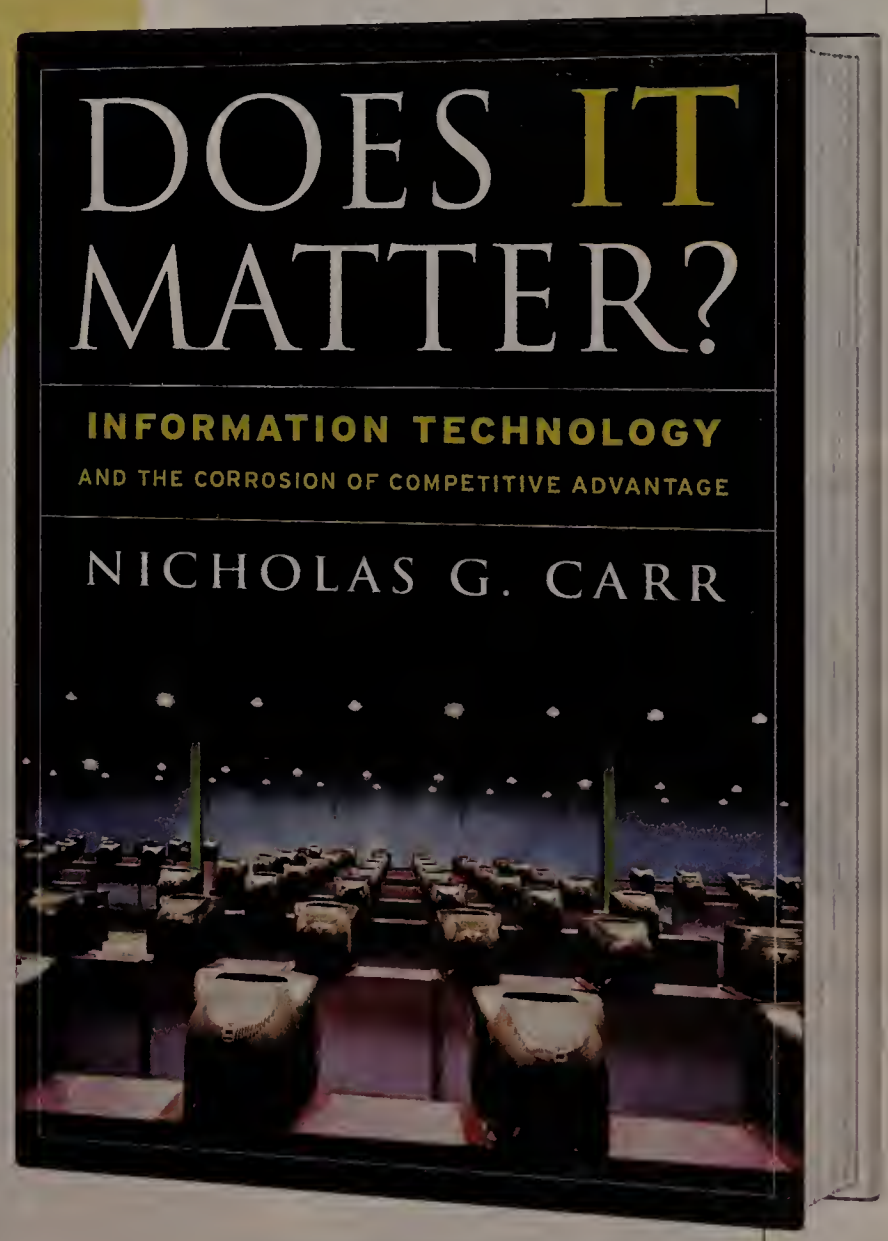
"Carr lays out the simple truths of the economics of information technology in a lucid way."
—*The New York Times*

"His argument is simple, powerful and yet also subtle."
—*The Economist*

"An important and insightful book which will have a significant impact on how corporations think about IT."
—Tony Comper, CEO, BMO Financial

"Engages the imagination and the emotions, a rare combination in a business book."
—*Boston Globe*

"Will give executives and managers a way to sift through the next wave of tech hype."
—*Business Week*



Available wherever books are sold, including:

The Center for HBS Press Books at Barnes & Noble Citigroup
160 East 54th Street (Citigroup Center), NYC

Barnes & Noble Rockefeller Center
5th Avenue & 48th Street, NYC

Borders
612 East Liberty Street, Ann Arbor, MI 48104

HARVARD BUSINESS SCHOOL PRESS
www.HBSPress.org

MELINDA BECK

Boutique Shopping

Small, specialized IT consulting firms can add deep experience and speed to IT projects. But there are risks to be managed.

BY MARY BRANDEL

CIO JEAN DELANEY NELSON learned important lessons about using small "boutique" consulting firms from a mistake she made 10 years ago. When Minnesota Life Insurance Co. was moving to client/server computing, Delaney Nelson signed a contract with a small consulting firm to advise on the overall strategic shift as well as the implementation details. But the firm just wasn't up to doing both jobs.

"We learned that boutiques work better in a specific, defined way, like when you're asking, 'What's the best tool to do this particular thing?' " Delaney Nelson says.

So when the insurer recently had to choose between Java and .Net for its Internet development platform, Delaney Nelson lined up outside advisers like Gartner Inc. for an evaluation of the two platforms and then turned to a small, regional consultancy to develop a detailed training plan, specify architectural components and choose the most appropriate development tools.

CIOs today aren't afraid to use such specialized consulting firms to gain extra depth of experience in IT niches or vertical industries. In fact, consulting specialists are favored over generalists by midsize clients with revenue between $10 million and $9 billion per year, according to research by Kennedy Information Inc., a Peterborough, N.H., firm that analyzes the professional services industry. (Larger clients prefer one-stop consulting shops because their needs are more complex, the research indicates.)

"A decade or two ago, no one got fired for hiring McKinsey or IBM. Now, bigger is not necessarily better," says Jess Scheer, executive editor at Kennedy Information.

But it's important to learn when to use boutique consulting firms and how to manage the risks.

The Right Fit

The most important thing is knowing when a boutique is the best choice. The main indicator is when you need depth — not breadth — of experience. Three years ago, Janet Burns at The New York Times Co. cast a wide net when she needed help writing a project management methodology and training IT workers in that methodology. Ultimately, Burns selected Project Management Solutions Inc. over some larger contenders.

"It was important that we chose somebody who was 100% project-management-focused and could have an immediate impact," says Burns, director of project management for corporate IT. "With a larger firm, it seemed like something they were trying to add to their list of services."

Boutiques can also help to speed up a project. "Many small firms are agile, and because they have a lighter management process, that can make the project go faster," says Jason Glazier, chief technology and e-commerce officer at Lincoln Financial Group, a $4.6 billion provider of life insurance, retirement products and wealth management services in Philadelphia. But there's a flip side: Sometimes this same lack of a strict development process means the boutique can't handle the rigors of a bigger project.

Once you've determined that a boutique is the right way to go, it's time to ask some questions. The first is one that you should answer: Have you or your peers or co-workers heard of this firm before? CIOs say they're unlikely to go with a no-name firm unless a colleague recommends it. "For a small vendor to try and cold-call their way in is impossible without some type of introduction or someone pushing to bring them in," Glazier says.

You also need to check into the consultancy's financial footing, either by getting annual statements covering the past three years, if the company is public, or a balance sheet summary, if it's private. Ben Harris, deputy secretary for operations and technology at the Florida Department of Children & Families, uses a simple rule of thumb: "I think it's important to have a minimum requirement of $20 million revenue and two to three years of profitability."

Of course you also want to speak with the company's clients — but not just any client. Talk with references who are in your industry or have completed similar projects. "Ask for accounts where things have gone smoothly and where things have gone rough," Harris recommends. And ask what percentage of the boutique's clients have returned for another project.

People Count

It's especially important to check into the background of the CEO and other senior members of the firm — after all, it's their experience you're paying for. Delaney Nelson suggests asking about the specific relevant experience of the consultant who would be assigned to your project, as well as how recently he obtained this experience. Burns goes so far as to ask to meet, and obtain résumés of, the people she'll be working with.

The selection of a boutique over a larger firm is typically based less on price than on trust. In fact, boutiques may charge nearly the same hourly rate as IBM or Accenture Ltd. However, since you're likely working with the top guns at the firm, you should be getting more experience for your dollar. The smaller firms may also be more willing to overperform for a large client, adds Harris.

Clients are looking for a trusted adviser, says Tom Rodenhauser, president of Consulting Information Services LLC, a market research firm in Keene, N.H. "Boutiques are the most accountable of consulting companies," he says. "They can't afford to do a bad job." **46786**

Brandel is a Computerworld *contributing writer in Grand Rapids, Mich. Contact her at mary.brandel@comcast.net.*

THE FINE PRINT

Here are some tips for using the contract to manage a boutique relationship:

- **Get a guaranteed workforce.** Boutiques don't have a deep enough bench to easily swap in people with the same skills if someone leaves in the middle of your project. That's why Lincoln Financial's Jason Glazier suggests writing into the contract the names of the project manager and other specific people you want to work with. If these people leave, you can opt to renegotiate, terminate the contract or at least have a voice in the process of interviewing potential replacements.
- **Use creative pricing.** Boutique consultancies may be more willing to use payment models such as contingency pricing, also called risk- or gain-sharing [QuickLink 45728]. With this method, they get paid a base price plus an extra percentage based on whether the promised results are achieved.
- **Examine the financial guarantee.** Sometimes a boutique is so small that even if it will sign a financial guarantee, it may not be able to back it because paying the penalty would bankrupt the firm. "If the project is going to create large financial ramifications, that's difficult with a small firm, because the guarantee doesn't mean much," Glazier says. "In some cases, your lawyers won't even sign off on it."

– Mary Brandel

TAKE OUR SALARY SURVEY

Are YOU being PAID what you're WORTH?

FIND OUT when Computerworld publishes the results from its 18th Annual Salary Survey of IT professionals!

How much are other IT professionals with your experience and credentials earning? With help from you and your IT colleagues across the country, Computerworld will answer these questions when we deliver the results from our 18th Annual Salary Survey.

Please take our survey now and enter a drawing to win one of two $500 American Express Gift Cheques. Our survey period closes Wednesday, June 30, 2004, at 5 p.m.

Survey results and feature stories that offer practical career advice will be published in the Oct. 25, 2004, issue of Computerworld. It will offer detailed information on average salaries and bonuses, broken out by title, industry and region. You'll be able to compare your organization's compensation plans with those of other companies and find the hottest areas of the country for IT pay.

To take the survey, and qualify for the drawing, go to:
www.computerworld.com/takesalary2004

YOU COULD WIN A $500 AMERICAN EXPRESS GIFT CHEQUE!

COMPUTERWORLD
SALARY SURVEY
2004

Career Watch

ASK AN IT LEADER

Bob Leo

TITLE: Solution architect
COMPANY: Ascential Software Corp., Westboro, Mass.

Leo is this month's guest *Computerworld* Premier 100 IT Leader, answering a reader's question about career options in the IT field. If you have a question to pose to one of our Premier 100 IT Leaders, send it to askaleader@computerworld.com and watch for this column each month online and in print.

I am pursuing a master's degree in computer science at a university in Canada. I have performed well academically and have done some management work, but I don't have prior work experience in the IT field. What are the career options for me? Is there a particular technology I should learn about or certification I should get? Our industry is so very vast, and the opportunities are endless. I think you have to first decide the discipline you'd like to pursue: data management (my favorite), programming (which flavor?), infrastructure, security, Web development and telecommunications are just a few.

Once you've decided that, I would recommend finding companies that can offer you internship programs as you complete your degree. It lengthens the academic cycle, but it is certainly worth it to gain valuable experience. Another benefit is that you can "try before you buy" in the discipline you select, giving you plenty of time to change your path if you find that your first choice isn't as attractive as you anticipated. Best of luck. **46929**

Numbers Crunch: People, Pay and Productivity

4.7%	Average annual percentage growth in productivity between 2001 and 2003
72%	Percentage of IT organizations indicating a morale problem
24%	Percentage of companies that pay IT employees salaries at least 20% higher than non-IT employees
37%	Percentage of companies paying IT salaries 11% to 19% higher than non-IT salaries
25%	Percentage of Global 2000 companies that conduct semiannual reviews of IT salaries
25%	Percentage of companies with an HR specialist dedicated to IT

SOURCES: BUREAU OF LABOR STATISTICS; META GROUP INC., STAMFORD, CONN., 2004

Behind IT Hiring

Companies have hired IT staffers this year, but the number of new positions continues to be far from robust, according to Meta Group Inc. Reasons for hiring break out as follows:

Acquiring needed IT skills	28%
Converting contractors to employees	28%
Business expansion	28%
Mergers/acquisitions	27%
Voluntary turnover	2%
New projects	2%
Understaffed	1%
Retirements	1%
Restructuring	1%
Promotions	1%
Involuntary turnover	1%

SOURCE: META GROUP INC., MAY 2004

Campus to Company

52%	Percentage of graduates who participated in a college internship or co-op program
60%	Percentage of graduates who search for jobs online
36%	Percentage of graduates who search newspaper classified ads
75%	Percentage of graduates who haven't found jobs
$20k-$40k	Average starting salary graduates expect to earn

BASE: 722 graduating college seniors

SOURCE: HARRIS INTERACTIVE INC., ROCHESTER, N.Y., MAY 2004

Budgets Up, Jobs Up in the Air

IT MANAGERS are beginning to loosen their purse strings for new tech projects, according to a recent study by Goldman Sachs Global Investment Research in New York. **More than half – 55% – of 100 Fortune 1,000 IT executives interviewed in April said they expect to increase IT capital spending this year.** But much of the work associated with those projects appears to be headed offshore. Asked which IT service providers are gaining a share of their IT spending dollars, CIOs listed IBM, Infosys Technologies Ltd., Cognizant Technologies Solutions Group – all of which have a large offshore presence in India – and BearingPoint Inc. as winners. Losers include Accenture Ltd., Electronic Data Systems Corp. and Computer Sciences Corp.

CIOs' Top Spending Priorities

- Security software
- Security hardware
- Handheld devices
- Total storage software
- Wireless LAN connectivity
- Virtual private networks
- Web application server software
- Enterprise portal software
- Voice-over-IP equipment
- Storage networking
- Data networking equipment

Flexing Their Funny Bones

WOMEN IN IT USE LAUGHTER to create a sense of solidarity with their female co-workers, exert their superiority and deal with incongruities in the work environment, according to findings by three researchers at the University of Arkansas.

The researchers assembled 39 female IT professionals into six focus groups to discuss their professional experiences, obstacles to promotion, work/life balance and other issues. The researchers recorded the discussions and noticed a pattern of group laughter. Among other things, they found that women laugh for the reasons mentioned above and to minimize the difficulty of discussing taboo subjects.

Sometimes women laugh because "what else can we do when we compare actual workplace conditions to our expectations for what is fair or ideally expected in a professional setting?" says researcher Myria Allen, an associate professor of communications.

Together with co-researchers Margaret Reid, a professor of public administration, and Cynthia Riemenschneider, a professor of information systems, Allen hopes to use the study to make employers aware of barriers specific to women in IT and to come up with ways to overcome them.

– Julia King

QUICK HITS

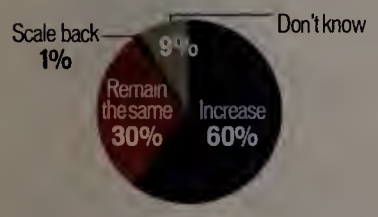
Sarbanes-Oxley Spending

Percentage of firms planning to increase spending on ERP to support Sarbanes-Oxley Act compliance during the next 12 months:

Base: 454 publicly traded companies affected by Sarbanes-Oxley

Wireless LAN Plans

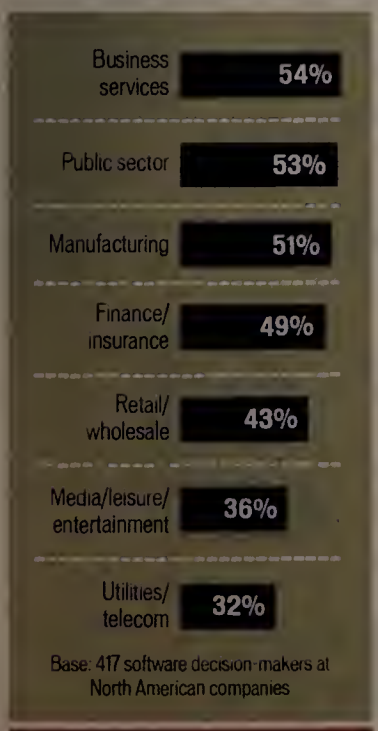
How will your deployment of WLANs change during the next 12 months?



Base: 479 infrastructure decision-makers at North American companies

Beefing Up BI

Percentage of companies by sector that plan to increase deployment of business intelligence during the next 12 months:



Base: 417 software decision-makers at North American companies

SOURCE FOR ALL FORRESTER RESEARCH INC SURVEY OF 878 TECHNOLOGY DECISION MAKERS AT NORTH AMERICAN COMPANIES IN FEBRUARY AND MARCH, 2004

CATHERINE A. TOMCZYK

Time to Get Back to Basics

CUTTING, PASTING, coloring within the lines, playing nicely, telling stories and sharing toys are skills we learned in kindergarten. I am still amazed that these are also the primary skills required to be a good project manager.

I have been a project manager since the beginning of time. That means back in the days when critical paths were calculated by hand, and a schedule was printed once on a plotter at the beginning of the project and markers were used to note updates on white tape.

CATHERINE A. TOMCZYK is a project manager at First Data Corp. in Englewood, Colo. Contact her at **catherine.tomczyk@firstdatacorp.com.**

Today we have incredible software that easily identifies critical paths, prints schedules and allows the project manager to play with unlimited "what if" scenarios. Yet, even with the new and improved printers and software, our most useful skills are still those we learned in kindergarten.

Take our scissors, tape and glue skills, for example. We print out a schedule, cut the edges off the paper and tape the sixteen 8-by-11 pages together so we can move this scheduling masterpiece from the office floor to the wall of the project room — usually in another building. Gluing has had to be relearned because the modern glue stick is more like gum than glue and it takes all night to harden. Cubicles don't have enough floor space to allow for the hardening process, so we drape the schedule over the cubicle walls, creating a scheduling tent.

Color-coding is the project manager's primary communication tool. We color-code responsibilities because people can't find their names in the resource column to update their status without easy visual cues. When facilitating meetings, we use color markers to separate ideas for the visual learners. Even our project status dashboards are color-coded. After all, "PAST DUE" does not send a clear enough message, so we make it red, with "AT RISK" in yellow and "ON SCHEDULE" in green. My project room looks like a Disney art studio full of color-coded charts and reports. All I need now is animation. Maybe I should use happy bears with green balloons when we're on schedule and rain clouds when we aren't.

All project managers know that meetings are essential, and they need structure. My meeting rules mimic those set by Robert Fulghum in *All I Really Need to Know I Learned in Kindergarten* (Ballantine Books, 1993): "Share everything, play fair, don't hit people and clean up your own mess. . . ." I've learned not to assume that adults know that being on time is courteous, that a cell phone ringing during a meeting is rude or that only one person should speak at a time. I have even had to write rules reminding people that physical altercations are not acceptable. Some people obviously failed the "play well with others" lesson.

Telling stories is at the heart of a project manager's communication plan. We are taught that reports and charts are the most effective communication tools, but oral traditions are what really build productive teams. People want you to tell them what the documents say, in easy-to-understand language. If you can add clever metaphors, that's even better. Illustrate criticisms with meaningful personal stories, and team members will change their behavior. Verbally paint a colorful picture of the project vision, and the team will jump on board with contagious enthusiasm. And don't forget that your job is to repeat the stories over and over and over again.

Sharing is the project manager's mantra. We all share old project charters, schedules and risk lists. After all, take a turbine overhaul schedule and replace the word *turbine* with *software* and it almost works. Risks about shipping or traveling in winter affect all projects, whether they involve building computer telephony systems or installing medical devices.

We all remember kindergarten for daylong playtime, and we need to remember that fun is still what makes the days enjoyable, the work pleasurable and the learning interesting. The agenda for every workday should include fun.

So next time you're feeling overwhelmed by the complexity of a project, remember that the skills that will get you through are the ones you mastered in kindergarten. **46626**

IN THE TRENCHES

Learning by doing beats by-the-book project management any day: **QuickLink 43736**

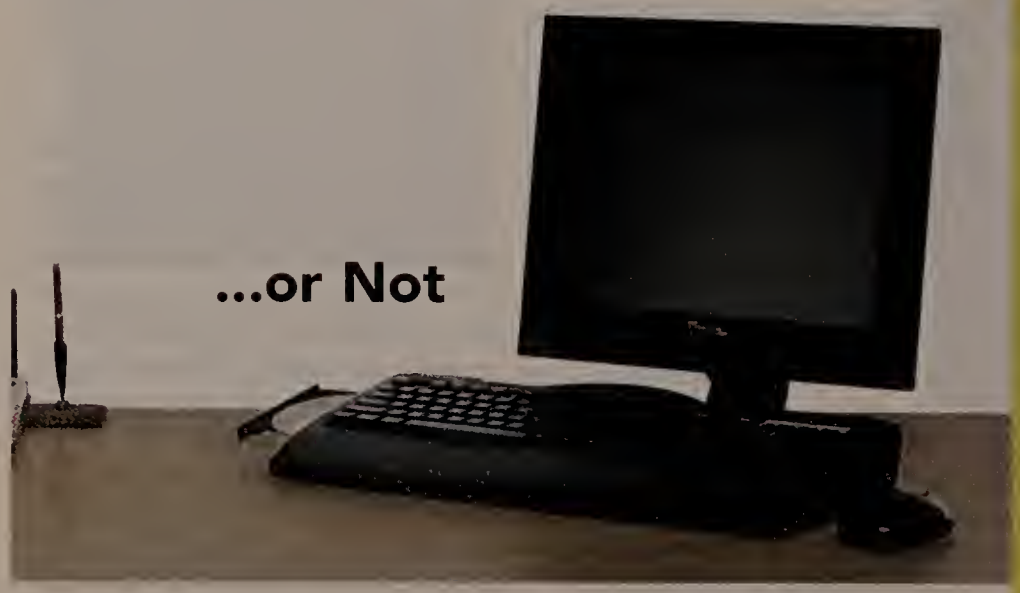
WANT OUR OPINION?

For more columns and links to our archives, go to **www.computerworld.com/opinions**

Get Rid of the PC Box. Save Space.

The PC Box

...or Not



An entire PC inside a keyboard

OPTIONS:

Internal slim CDRW/DVD • Internal floppy • Internal fax modem • DVI (Digital Video) Parallel Port • TV-Out (NTSC/PAL) • Plastic Skin Protector • LCD Displays: 15", 17", 18" and 19" (touch screen available) • Wireless 802.11b/g available

Runs all Microsoft™ Windows 98/2K/XP/NT operating systems.

U. S. Patent Pending. © 2004, Cybernet Manufacturing, Inc. all rights reserved. The Cybernet logo and Zero-Footprint-PC are trademarks of Cybernet Manufacturing, Inc. Intel, Intel Inside, Pentium, Celeron are trademarks, or registered trademarks of Intel Corporation, or its subsidiaries in the United States and other countries. All other registered trademarks are property of their respective owners. Prices and specifications are subject to change without notice. All prices are excluding tax and shipping. *Monitor not included.

As an I.T. Manager, your greatest challenge could be where to put that big PC BOX! Cybernet has created an innovative, all-in-one, Zero-Footprint-PC. The entire PC fits inside a normal size keyboard! This design has helped many businesses nationwide to save valuable space.

STANDARD FEATURES:

- Intel® Pentium® 4 Processor up to 2.80GHz/533 FSB
- 128MB DDR333 SDRAM up to 2GB
- 40GB IDE 7200 RPM hard drive, up to any size
- 10/100 Ethernet, 4 USB 2.0, 2 IEEE1394 Firewire, 2 Serial Ports
- 2-Year Limited Warranty

All these features are inside the keyboard!

As low as $475*

CYBERNET™
Space Saving Technology

intel inside pentium 4

For product specs and model options visit us at: **www.cybernetman.com,**
or call: **TOLL FREE 888-834-4577** International **949-477-0300**

enterprise integration

network vulnerabilities

corporate data security

government compliance

mobile & wireless security

business management needs

The right IT professional

can jump the hurdles of

today's IT challenges.

Call:

(800) 762-2977

Software Engineer (Duncan, South Carolina) Under supervision, build and design software distribution systems; implement, test systems applications, customize software, maintain software tables and develop and extensions; analyze and define business requirements, and provide IT solutions for business tasks; conduct systems engineering tests; take business requirements and translate them into technical specifications; laiise with colleagues in Germany concerning work. Reqs; BS in Comp Sci, Engineering or Math; 6 mos exp in position or six months exp as programmer. Must have knowledge of Unix Shell and SQL and fluency in German 40 hrs/week; 9-5, $40,000 p. yr. Send letter and resume to: Terri Brennan, Arvato Systems NA, Inc., 1540 Broadway, New York, NY 10036.

Seeking qualified applicants for the following positions in Collierville, TN: Senior Technical Analyst. Research, evaluate, implement and coordinate changes to computer systems/applications. Requirements: Bachelor's degree or equivalent* in computer science, math, MIS, computer information systems, engineering or related field plus 5 years of experience in systems/applications development, including programming. Experience with systems administration using Solaris, HPUX and LINUX also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Glenn Geiger, FedEx Corporate Services, 25 FedEx Parkway, Collierville, TN 38017. EOE M/F/D/V.

Diveo, a leading broadband Internet access services company, has an opening for Chief Technology Officer in Fort Lauderdale, Florida. The position requires a bachelor degree or foreign equivalent in telecommunications, electrical engineering, or closely related field and a minimum of eight years related experience. Position also requires related experience in fiber optic networks, data center building and/or management, and leading technology teams in Latin America. Please forward resume to: Diveo, Attention: Human Resources, Job ID: 112358, One Financial Plaza, Suite 1700, Fort Lauderdale, FL 33394. EOE. No Emails.

Software Developer, Alpharetta: Design, develop & test s/ware applications incl. server side development using J2EE, AI techniques, Java, Struts, Windows, UNIX, XML, graphics programming, RDB & JDBC. Develop production grade systems using advanced graphics & AI technologies in Java-based enviro; estimate s/ware lifecycle tasks; repair & modify programs. Req: Bachelors in Comp. Sci.+ 2 yrs. exp. in job offered or as S/ware Dvlpr w/exp. developing production grade systems using advanced graphics & Artificial Intelligence technologies in JAVA environment. Mail resume to: HR, Seldon Systems, 705 Barnesley Lane, Alpharetta, GA 30022.

Prog/Analysts to analyze and develop appls using OOAD, VC++, C++, ASP, VB, Java, XML, XSL, Jscript, UML, HTML, etc. under Windows/ UNIX OS; perform initial study of req and provide feedback; provide on site maintenance support, debug, modify, fine tune and perform code optimization. Require: BS or foreign equiv. in CS/Engg.(any branch) & 2 yrs of exp. in IT. High Salary. Travel Involved. F/T. Resume to: HR, Fourth Technologies, Inc., 585 Tollgate Road Suite I, Elgin, IL 60123.

Embedded Software Engineer II: As member of the Platform and Protocol SW team, ESE is responsible for gathering requirements, developing specifications, design, implementation, unit testing, integration, and maintenance of embedded software on a Motorola based platform. Daily duties include: writing functional specifications; decomposing functional specifications into component requirements; estimating time-to-complete based on the requirements and preliminary design information; designing components that fit in the current architecture; and maintenance of existing Platform and Protocol firmware to support existing and future software releases. Daily work with the TRxStream and NetAccess series product line, which consists of PCI and cPCI voice, IP telephony, fax, telephony hardware, embedded software, device drivers, APIs, and various signaling and data protocols such as SS7 and ISDN. Min. Reqs.: BS/BA (foreign equivalent accepted) in CS, IT, EE, or related field of study plus 2 yrs exp. in job offered or 2 yrs exp. in a related occupation designing, developing and maintaining embedded platform and protocol software development for telecommunication products. PLUS, must have demonstrated experience and working knowledge of the following: (1) programming skills using C/C++; (2) Real-time embedded software development for Motorola processor based telecom products; (3) SW maintenance and customer support for telecom products; and (4) PSTN telephony technologies and protocols. Basic pay range is $55,000 to $70,000 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Job Order No. #2004-668, PO Box 989, Concord, NH 03302-0989.

COMPUTER PROFESSIONALS: Radiant Systems, Inc. a Nationwide Technology provider located in NJ,CT,TX & FL req Professionals w/ Hardware &/or Software skills Incl: C, C++, Java, JavaScript, XML, UML, Perl, HTML, SQL, Pro*C, VB, PB, VC++, MFC, SDK, GuptaSQL, Informix, Crystal Reports, Sybase, Dev 2000, Lotus Notes, Unix, Win NT/95/XP, RTOS, Sun OS, Help Desk/PC-Support, SAP, R/2-R/3, ABAP/4, SAP Scripts, PeopleSoft, IDMS, AS/400, COBOL/CICS/DB2, MVS, RPG/400, SQA, Win/Load Runner, SNMP, COBRA, ASP, Active-X, DTM/TDMA, FDMA, Routers, DSP/ATM, FRAME RELAY, TCP/IP, ISDN, DCOM, COM, PL/1, SAS, Vx-Works, VHDL, SONET/SDH, SNMP, HP OpenView, Proj Mgr,Tech Writers. Candidates w/a BS(or equiv) & 2yrs exp. as P/A and/or MS (or equiv) & 1yr exp. as S/E. Travel & reloc.,req. to anywhere in USA as assigned. Excel. Benefits. E-Mail: radiants@radiants.com Attn: H.R. Dept. 109-A Corporate Blvd., S. Plainfield, NJ 07080.

Sr. Internal Auditor. Seeking qualified applicants for the positions of Senior Internal Auditor. Position requires a B.S. in C.S or Computer Engineering, plus 4 years experience in position, systems analysis, programming or technical systems auditing. Please forward resume to: BellSouth Corporation, Attn: Susan Rodgers, 1155 Peachtree Street N.E., Suite 8F07, Atlanta, GA 30309. EOE

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Responsible for leading a small team of developers and technical architects on large Internet-based application engagements while working with design and requirement specifications to develop the desired functionality using web-based technology tools such as Java, Java 2 Enterprise Edition (J2EE), Java Servlets, JSP and JDBC focusing on user-interface (screens, navigation, etc.) component of the system. Involved in development and testing of middleware architecture utilizing IBM WebSphere and CORBA. Participate in planning and scoping activities and development of multiple application development technologies and information technologies integration and implementation strategies using various tools and languages. Design, build, assemble and test capabilities for software that may be integrated with another business package or application. Coordinate integration of client/server system with existing mainframe applications with knowledge of Java development on mainframe and transaction coordinators such as CICS (Customer Information Control System). Construct detailed system design using data and object models. Define technical architecture for proposed solutions and involved in the overall design of the system. Responsible for ensuring that system is stable and functioning efficiently; diagnosing problems or issues as they arise; ensuring that any issues or problems are resolved in a timely manner.

The wage offered is $75,780 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: Bachelor's degree in Computer Science, Engineering (any type), Math, Information Systems or Business Administration/Business + 2 years of experience in the job offered or 2 years of experience as a Systems Analyst or Technology Intern. Related experience must include at least one year of experience in the development and testing of middleware architecture such as IBM WebSphere and CORBA. Position also requires at least one year of experience with system integration and key Java 2 and J2EE elements including Java Servlets, JSP, JDBC, Java development on mainframe and transaction coordinators such as CICS (Customer Information Control System).

Please send your resume, referencing Job Order Number **WEB 420986** to the: PA CareerLink, FLC Unit, 235 West Chelten Avenue, Philadelphia, PA. 19144. EOE.

COMPUTER PROFESSIONALS

Opportunities for:
- SYSTEMS/BUSINESS/ PROGRAMMER ANALYSTS
- PROCESS CAPABILITY ANALYST
- QC ANALYST
- WEB ARCHITECTS/ DEVELOPERS
- SYSTEMS ANALYSTS
- WEB GRAPHIC DESIGNERS
- NETWORK ENGINEERS
- PROGRAMMER/ANALYSTS
- SOFTWARE ENGINEERS

SKILLS:
- COLD FUSION • SPECTRA
- ORACLE • VISUAL BASIC
- VISUAL C++ • SIEBEL • ASP
- COM, DCOM • JSP • HTML
- JAVA, JAVA BEAN • EJB JAVA SERVLETS • WEBSPHERE
- IBM MQ SERIES • XML,UML
- MTS • CLARIFY • PERL
- OBJECTPERL • SPYPERL
- SMALLTALK • PL/SQL
- VISUAL AGE • COBOL, SPL, UNIX

Visit our website @ www.computerhorizons.com

Attractive salaries and benefits. Please forward your resume to: H.R. Mgr., Computer Horizons Corp., 49 Old Bloomfield Avenue, Mountain Lakes, New Jersey 07046-1495. Call 973-299-4000. E-mail: jobs@computerhorizons.com. An Equal Opportunity Employer M/F.

Consulting:
Strategy & Operations

Deloitte Consulting LLP invites you to explore a dynamic career in Glen Mills, PA and throughout the United States. A consulting position of a Strategy & Operations Manager is available with experience managing consulting projects from conception to final delivery for multinational companies in the Communications Industry, specifically in the areas of Corporate Strategy and Operations Excellence. Use cross-functional skills (Strategy, Information Technology, Operations, Finance and Marketing) and industry specific experience to quickly penetrate clients to understand their current and future needs. Perform business review and evaluation including research of industry trends and financial analysis; map processes and identify improvement opportunities for quick implementation; conduct interviews and facilitate visioning exercises with executives; write comprehensive reports for clients' senior management; develop short and long-term strategies for clients. Perform the role of moderator between technology and business teams. Supervise and manage associates and provide directions and feedback regarding their performance. Manage quality of deliverables and financial performance of projects and coordinate collection activities. Participate in business development activities for industry target clients.

Master's degree or equivalent in Computer Science, Math, Engineering (any), Information Systems or Business Administration and at least 5 years of experience in the job offered or 5 years of experience as a Manager (any), Senior Consultant, Finance Associate or Related is required. At least three years of related experience working with senior management in multinational companies in the Communications Industry with cross-functional experience in Strategy, Information Technology, Operations, Finance and Marketing must include performing business evaluations (financial analysis and industry research), identifying and implementing process improvement opportunities, writing strategy reports, development of short and long-term strategic plans, supervision of staff, client collection activities and developing new business opportunities.

Travel is required 80% of the time at a minimum. Must also be willing to relocate to client sites.

Interested? Please submit your resume by email to eazzaro@deloitte.com.

Deloitte Consulting LLP is an equal opportunity firm. We recruit, employ, train, compensate and promote without regard to race, religion, creed, color, national origin, age, gender, sexual orientation, marital status, disability or veteran status, or any basis protected by applicable, federal, state or local law. Copyright ©2004 Deloitte Development LLC. All rights reserved.

IS Mgr. to d/zn /maintain networks; support LAN, WAN, & Internet systems. T/shoot TCP/IP issues. System admin. Of NT/ Unix systems. Use applns. in Cognos PowerHouse by Sun Solaris, IBM AIX, MS Win NT. Rapid Appln Dev, S/ware Programming, with Object Oriented analysis & d/zn process. Network security through firewalls & IDS. Administer email servers running MS Xchange & qmail. Provide expertise on disaster recovery & planning. Admin servers in a heterogeneous env. running Linux, Windows, Sun Solaris & HP-UX. D/zn high availability clusters on various platforms & provide max uptime. Consult customers running high-end backoffice env like AS400/ Unix & advise best options for digital copiers/printers. D/base Admin. for MS SQL Server & DB Arch for prospect tracking applns using .NET. Comp. Salary MS in Comp. Sci. +1 yr. exp. in job OR 1 yr. exp. in Networks/ Database Admin. Apply: The Stewart Org.; 4000 Colonnade Pkwy, Birmingham, AL 35243 with proof of perm. work authzn.

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.). Involved in all phases of System Development Life Cycle (SDLC) using IBM Mainframe technologies in general and COBOLII, CICS (Customer Information Control System), VSAM (Virtual Storage Access Method) and DB2 in specific. Conduct user requirements and design, develop and implement online and batch programs with various levels of complexity. Involved in all phases of SDLC using JAVA and Power Builder providing the conceptual strategy to implement JAVA / Power Builder user views with COBOL business modules. Design and develop Use Cases to execute the testing of JAVA modules. Member of the Joint Application Development (JAD) sessions with the development teams to gather requirements and to develop conceptual design of user screens utilizing CICS/JAVA/ Power Builder. Involved in the design, development and fine tuning of COBOL/PL/1 programs with significant DB2 SQL access. Utilizes platinum utilities for DB2 to tweak the performance of DB2 SQL, Administration and Management of application specific DB2 tables. Develops Ad-hoc reports and feed files for the external and internal agencies using DB2, Complex SQL and TERADATA. Automates processes for quicker turnaround of application development and develops tools to execute the stream of jobs using REXX to automate the testing activities. Designs, develops and implements JCL (Job Control Language) jobs to execute batch programs.

WAGE: $74,752/year
Hours worked: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS: Bachelor's degree in Engineering (any type), Math, Business Administration or Information Systems + 3 years exp. in the job offered or 3 years exp. as a Senior Consultant, Consultant, Analyst or Module Leader. Related experience must also include at least 2 years of: VS COBOL II, CICS (Customer Information Control System), VSAM, DB2/SQL, PL/1, JAVA, Power Builder, TERADATA, REXX, JCL (Job Control Language), and Platinum utilities for DB2.

Please send your resume, referencing Job Order Number **WEB 420835** to the: Philadelphia NW Careerlink, FLC Unit, 235 W. Chelten Ave., Philadelphia, PA 19144. EOE.

Infomerica is looking for system/programmer analysts, software/project engineers & computer consultants to develop applications using Oracle, SQL, DB2, C/C++, VB, SAP, Java, Infomix etc. Candidates must have BS/MS with IT exp. Send resumes to info@infomericainc.com EOE.

Cigniti has openings for System Analysts or Software Engineers. Candidates must have BS/MS with experience. Use skills such as Java, Cobol, EJB, ERP, Oracle, SQL, VB, C/C++. Travel may be required for some jobs. Competitive salary. Please apply at info@cigniti.com. No calls. EOE.

Sr. Technical Lead Architect. Lead team of 3 or more; create data models; meet with business unit; perform high end development in a Data Warehouse, C# Architecture and Web Services environment; Requirements: B.S. degree in Electrical Engineering, Computer Science or a related field PLUS 2 yrs. exp. in job or 2 yrs. as Programmer/ Analyst or Developer in Data Warehousing, Technical Architecture, and C # architecture. Send CV to Elite Computer Consultants Attn. Rod Holtkamp, Address 10333 N.W. Frwy, Suite 414 Houston, TX 77092 Fax: 713-686-9454.

Senior Architect (Advisory Systems Engineer): Serve as team leader in the design and implementation of large-scale business systems based on J2EE architecture; responsible for network and distributed programming as well as defining the technical architecture of information services facing external customers and leveraging existing telecom vertical services; provide senior management with system design recommendations to alternatives in conformance with corporate architectural guidelines and coordinating the implementation of designs within projected time frames; recommend techniques and methodologies to systems personnel that will result in improved productivity and product quality. Requires Masters degree in Comp Science or Math plus 2 years exp in the job offered or 2 years exp in the design and implementation of large-scale business systems based on J2EE architecture, and network and distributed programming. Salary $103,000/yr, 40 hrs/wk, 8AM-5PM, Monday-Friday. To apply, submit two (2) copies of resume to: Case # 200204084, Division of Career Services, Labor Certification Unit, 19 Staniford St, 1st Fl., Boston, MA 02114.

Software Engineer/ Technology Analyst

Min. BS in Computer Science, Physics, Math or related field.
- 5 yrs exp. req., must include 3 yrs of exp. in business process management, project management, process re-engineering. Six Sigma project exp required.
- Knowledge of multiple technologies including: UML design, J2EE, .NET, XML/XSL, SOAP, JavaScript, Java, VB, VB.NET, C/C++, C#, Perl, TCL, CORBA, COM/DCOM, PL/SQL, Oracle/ SQL Server.
- Proficient in interactive TV technologies including: OpenTV SDK, Seachange VOD management systems, DSM-CC protocol.
Mail only: Steve Winter, Ergos, 1717 St. James Place, Suite 320, Houston, TX 77056.

Executive Director - OEM Servers and Appliances (with Masters degree and 3 years experience or Bachelors degree and 8 years of experience) - Job entails and requires experience in product management, sales and marketing management of rackmount servers; designing and developing a business plan and formulating new marketing strategies; designing and developing complete line of rackmount internet servers and appliance products; creating engineering designs using AutoCad and designing programs using C and C++; developing and maintaining vendor relationships; developing relationships with open source community (Linux and FreeBSD). Relocation within USA Possible. Attractive compensation package. Send resume to Norma Huntington, NCS Technologies, Inc., 9490 Innovation Drive, Manassas, VA 20110.

System Administrators to Install, maintain, administer Windows, Linux, Solaris OS; install, maintain Web/Mailing Servers; plan, maintain, troubleshoot LAN/ WAN; maintain backups & provide hardware/software support for users; create, update user accounts; evaluate new/existing systems, recommend future IT strategies. Require: BS or foreign equiv. in CS/Engineering (any branch) and two yrs exp in job offered. MS of foreign equiv. in one of the above fields will be accepted in lieu of BS & 2 yrs exp. F/T. Travel Involved. High Salary. Resumes to: HR, Global IT Solutions USI, Inc., 600 Stevens Port Drive, Ste 125, Dakota Dunes, SD 57049.

GIS Consultant sought by IT company in Denver, CO to work in Denver, CO & other unanticipated job sites in the US. Design and develop in Geographic Information Systems software applications which translate, analyze and visualize spatial data. The applications are independent of computer environment, across-platform, and often incorporate relational database management systems. Analyze requirements; create designs; code, test, debug, implement and modify the applications. Create documentation. Serve as technical manager as needed. Utilize Perl, C, SQL and proprietary languages and tools in designing the GIS applications. Requires Bachelor's or foreign equivalent in Geography or Geographic Information Systems; 1 yr exp designing and developing geographic information systems software applications, using languages including C and Perl. 8am-5pm, M-F; $81,600/year. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5078731

Quality Assurance & IT System Engineer: Design and build installations for industrial automation products using Microsoft Studio C++, Install Shield and DemoShield. Manage Software Source Control Systems and Network Administration. Administration and maintenance of company's web server, internet domain, e-mail system and ftp site. Requires: B.S. in CS, Math or related field and five years experience in network and computer systems administration. Demonstrated knowledge of C, C++, and IBM PC's. 40hrs/wk (9:00 a.m. to 5:00 p.m.) $92,833.00.00/yr. Send two resumes/responses to: Case Number 200204320, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Sr. Prog Analysts to manage teams to analyze, design, develop appls in client server/3-tier architecture using C, C++, Tuxedo, Btrieve, MQ Series,Oracle, Sybase, Socket API, COBOL, etc. under Windows, Unix OS; analyze business processes to determine reqs; implement appls and perform strategic planning/operations support; provide end user training. Require BS or foreign equiv. in CS/Engg. (any branch) & 3 yrs exp. in IT. Competitive salary, F/T, travel involved. Resume to HR, Ordusion Technologies, Inc., 3883 Rogers Bridge Road, Suite 504, Duluth, GA

Paradigm Infotech is looking for programmer/system analysts, DBA, s/w engineers. Candidate must have BS/MS with experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML, ERP are plus. Traveling required for some jobs. Apply jobs@paradigminfotech.com. EOE. No call.

OTS (Object Technology Solutions) has multiple openings for IT professionals (software engineers, system/program analysts, DBA, etc) to design and develop applications using various skills such as VB, Oracle, Java, WebSphere, SQL, SAP. Req MS/BS with exp. Contact resumes@otsi-usa.com. EOE.

Financial Systems Administrator

To maintain the company's networks and Internet sys., implement network security measures to protect and generate the company's financial data for analysis, design and maintain the company's English and Chinese website and update online insurance/investment data and quotes. Req. M. S. degree in Comp. Info. Sys. or closely related field, prof. in Access, SQL, client-server application and working knowledge of network info. security. 40 hrs/wk. Send resume to Corina Chou, 5389-C New P'tree Rd. Chamblee, GA 30341.

Software Engineer, Systems - research, design, develop, implement software solutions for clients using LabVIEW, C, C++, VB, SQL Server, Database connectivity, PXI modules, etc. under Windows envir; interact with clients to write system specs and perform study, analysis and design of systems for automated test reqs; provide on-site implementation/technical support. Require: MS or foreign equiv. in CS/Engg. (any branch) & 1yr exp in IT. Competitive salary. F/T. Resume: HR, V I Engineering, Inc., 37800 Hills Tech Drive Farmington Hills, MI USA 48331.

iKuni, Inc. currently has an opportunity in Palo Alto, CA for a Software Engineer (Artificial Intelligence Engineer) position. Req's Ph.D.+ 3 yrs. of exp. applying AI techniques to real-time games.

You may send a resume to iKuni, Inc. 3400 Hillview Ave, Bldg. 5, Palo Alto, CA 94304.

NEED TO HIRE FAST? START HERE FIRST!

IT Careers and itcareers.com reach more than 2/3 of all US IT workers every week. If you need to hire top talent, start by hiring us!

Check us out at: www.itcareers.com or call: (800)762-2977

RESEARCH PROGRAMMER
University of Illinois at Chicago

Administer UNIX, Windows NT and other servers used for teaching; programming; provide instructionat technology consulting to faculty; help develop technology-based courses and teach computer seminars and workshops. The applicant should have a Bachelor's Degree in Computer Science or related field, and have teaching experience. The successful candidate should have two years of combined experience in Windows NT, and UNIX system edministration, Webmaster experience, programming in HTML, Perl and C, and have experience in teaching, course development and in using computer and Internet technology in education. Working knowledge of Apache, IIS, Tomcat, Oracle, PL/SQL, Transact-SQL and multimedia authoring tools are a plus. Please submit resume by 6/25/04 to Mint Simagrai, Academic Computing and Communications Center, 1940 W. Taylor, Room 124 (M/C 135), Chicago, IL 60612. UIC is an Affirmative Action/Equal Opportunity Employer.

Systems Analyst

Analyze existing business procedures, problems to evaluate effectiveness. Analyze user requirement, procedures and problems to improve existing system. Review computer system capabilities, workflow, scheduling limitations. Develop full test methodology and supporting testing documentation to align with existing System Development Lifecycle methodology. Develop new system and prepare specifications to provide more applications to meet company's future needs. Prepare documentation on system developed and user's manual. Minimum requirements: Associate's degree in CS or related or equivalent plus 2 years experience. Please mail resume to:

The Ballard Group, Inc.
9450 Swan Lake Drive
Granite Bay, CA 95746

Systems Analyst for IT Solutions Co., in Springfield, MO. Send resume to Reynaldo Collantes @ Technocrest Systems Inc., 3125 S. Pickwick Pl., Springfield, MO 65804.

Computer Network Security Administrator. Install, config., maintain LAN, WAN, Internet. Plan, coord., implement network & internal data security, firewalls, VPNs. Apply EDI protocols for B2B. Back-up & disaster recovery; automate IS process. B.S. + 2 yrs. exper. Send resume to MIS Mgr., Meiko America, Inc., 2160 E. Dominguez St., Long Beach, CA 90810.

Systems Admins to plan, design, install, maintain and administer LAN/WAN networks; install, configure and administer Windows NT Servers, IIS Servers, SQL Servers; maintain backups and provide hardware/software support for users; create and maintain user accounts; manage communication systems including Mail servers; evaluate new and existing systems and recommend future IT strategies. Require: BS of foreign equiv. in CS/Engg. (any branch) /Buss. with 2 yrs exp. in Sys Admin./ Sys. Mgmt. F/T. Travel Involved. High Salary. Resumes to: HR, Fourth Technologies, Inc., 585 Tollgate Road, Ste I, Elgin, IL 60123.

Sr. Prog. Analysts to analyze, design, develop client server/n-tier appls using C, C++, Java, Perl, HTML, SQL Server, XML, ASP, JSP, Servlets, EJB, Weblogic, Java Scripts, etc. under Windows, Unix os; tune appls for better performance; interact with clients and end users for reqs gathering, analysis, planing and implementation; perform debugging and modifications of existing software. Require: Ms or foreign equiv. in CS/Engg. (any branch). F/T. competitive salary. Travel involved. Resumes to: HR, Semafor Technologies, Inc., 3300, Holcomb Bridge Road, Ste 212, Norcross, GA 30092.

Programmer Analysts to analyze, design s/w appls using SAP R/3, ABAP/4, C, C++, Java, VB, JSP, JScript, HTML on UNIX/Windows os; gather/document reqs from user community; test/troubleshoot project appl code according to system objectives. Require a B.S. or foreign equiv in CS/Engg (any branch) with 2 yrs exp in IT. High salary. F/T. Travel involved. Resume to HR, Smartsoft International, Inc., 3965, Johns Creek Court, Suwanee, GA 30024.

Seeking qualified applicants for the following positions in Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with Oracle and UNIX Scripting also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Prashant Tayade, FedEx Corporate Services, 30 FedEx Parkway, HKA/TN, Collierville, TN 38017-9623. EOE M/F/D/V.

SBI is looking for the following positions for its offices in Houston, TX, San Francisco, CA, Warren, NJ, Salt Lake City, UT and Portland, OR: Art Director, Web Designer, Programmer Analysts, Technical Architects, Technical Consultants, Business Strategists, Systems Analysts, Software Engineers, Software Developers, SAP Consultant, resumes by email or fax only to HR, SBI 2825 East Cottonwood Parkway, Suite 480, Salt Lake City, UT 84121: careers@sblandcompany.com; Fax (801) 733-3201.

Sr. Design Engineer - Build platform h/w & system architecture in GSM/GPRS smartphone. Multimedia h/w platform design & integration, GSM audio signal processing & testing & routing DSP audio firmware, modem & application h/w test cases development & debugging. Design & integration & test color LCD & digital camera & audio codec in smartphone. Masters deg in Comp Sci, Physics or Elec Engrg reqd + 1 yr exp In job offered. Send resume to Panasonic Mobile, 1225 Northbrook Pkwy, Suwanee, GA 30024, Attn: D. Greer, CA

Engineer
SOFTWARE ENGINEER VI - WEB TECHNOLOGY - (Waltham, MA) Leed the research, design & development of computer software systems solutions. Provide technical expertise & edvice, conceptualizing & creating technical solutions based on research & investigation to solve complex problems related to the design & deployment of high-tech telecommunications systems. Research & plan architectural designs & standards used to plan & guide strategic & tactical telecommunications activities. Translate business requirements & processes into detailed strategic designs for implementation by software engineers & operations personnel. Develop & direct, as well as serve primary technical lead of implementation phase using Solaris, Windows NT, Java, Visual C++ and Unix. Position requires a Master's Degree, or the equivalent, in Computer Science or Computer Engineering & 1 year of prior experience in the job offered or in the related occupation of Engineer, Consultant or Programmer Analyst. Employer will accept a Bachelor's Degree plus 5 years of progressive post-Bachelor's experience as equivalent to a Master's Degree plus 1 year of experience. Progressive experience must include experience with Solaris, Windows NT, Unix, Visual C++, Java. $92,840/year, plus usual corporate benefits, 9 AM - 5 PM, 40 hrs/wk. Mail two copies of resume to Case #200204163, Division of Career Services, Labor Certification Unit, 19 Staniford Street, 1st Floor, Boston, MA 02114. Must have proof of legal authorization to work in the United States.

Software Engineers to design, develop, maintain appls using OOAD, Java, XML, JSP, JavaScript, HTML, JDBC, EJB, JFC, Java beans, CORBA, Weblogic, RationalRose etc; perform reqs/problem analysis, solution design, implementation, documentation on developed appls; provide training and user support for appls; study/evaluate new tech. & methodologies; perform project planning, time/cost scheduling. Require: MS or foreign equiv. in CS/Information systems/Engg.(any branch)/ & 1 yr exp. in IT. Comp. salary. f/t. travel involved. Send Resumes to: HR, Opal Soft, Inc. 3150 Almaden Expwy Ste 205, San Jose, CA 95118.

VeriSign, Inc.
has an opening for a **Senior Manager** (Info Systems) in their Mt. View, CA office to direct west coast information systems operation. Position requires a Bachelor's degree in electronics engineering or related field plus 3 yrs of professional exp. in the job offered or with network engineering management. To apply, send resumes to: M. LaFever c/o **VeriSign**, 487 E. Middlefield Rd, Mt. View, CA, 94043, and reference job PH. EOE/AAP.

IT Education & Training Directory

Contact the companies listed below to help you with your training needs!

To place your ad please call 800-762-2977

IPexpert, Inc.
(866) 225-8064
www.ipexpert.com
CCIE (R&S, SEC, and C&S), CCSP, CCNP, CCNA, IP Telephony

CBT Nuggets
(888) 507-6283 & (541) 284-5522
www.cbtnuggets.com
Affordable training videos on CD
MCSE, MCDBA, MCSD, CCNA, Citrix, Linux, A+, Net +

Elster Electricity, LLC, a world-class provider of advanced electricity metering products, communication solutions and metering automation systems, is looking for a Embedded Firmware Engineer in our Raleigh, NC facility. The candidate will design, develop, implement and maintain embedded firmware for complex, high-function, solid-state electricity meters and intelligent option boards in C and Assembler using various microcontrollers. The position requires a Master's degree in Computer Science, Electrical Engineering or related field of study and 2 years experience including experience developing embedded firmware in C and assembly language for electricity meters using H8, M16C, and M3822x microcontrollers and implementing ANSI protocols. In addition, the following experience is highly desirable: working knowledge of ANSI standard meter protocols (C12.18, C12.19, C12.21); serial communications via I2C, SPI, RS-232, RS-485; modem communications using Si2400 modem chipset; CMX real-time operating system. We offer competitive salaries, yearly bonus eligibility, and benefits, including medical coverage, pension plan, 401(k) plan, paid tuition reimbursement, vacation and 12 paid holidays. Please send your resume to: Elster Electricity, LLC, 208 S. Rogers Lane, Raleigh, NC 27610, Human Resources/PS, Fax: 919-882-5906, Raleigh.Staffing@us.elster.com. Visit our website at: www.elsterelectricity.com. EOE.

ADVANSOFT INC.: A full life cycle C/S software consulting co. has multiple Programmer Analyst positions available for the following projects:

REF#FX001: Business Systems: Must have verifiable prof. exp. using Java, C++, VB, JSP, XML and weblogic application server. Applicants must have a BS in CS, MIS or Business rel. plus 2 yrs. exp. or 2 yrs. sys analysis/prog rel. exp.

REF#FX002: C/C & Web Apps: must have verifiable prof. exp. using XML, JSP, HTML, Java, Serviets, EJB, J2EE. Applicants must have 3 years college study in CS, Eng'g or App. Sci rel. plus 2 yrs exp. or 2 yrs prog/analysis rel. exp.

Must include on resume the job ref # that you are applying. Multiple job sites, may change to other sites throughout US as req. Send resume to Advansoft, 1807, Carriage Court, Addison, IL 60101. Legal right to work in the US must be stated.

Programmer/Analyst: Gether user requirements and perform systems analysis. Design end develop applications and database under close supervision. Will assist in the implementation of epplications and preparing documentation including user manuals. Will work with releted computer programming. Conduct user demonstrations and training. Experience to include: Tools to include: RPG III/iV, SQL/400 and Visual Basic. Database include: DB2, SQL Server and MS Access. Bachelors' degree or foreign equiv. In Comp. Sci., Maths, Physics or Engineering (any branch) 6 mths exp in job offered or 6 mths in a releted occup., as a Consultant (Software.) Salery: $61,650.00/year. Hrs of work: 40 per week Job and Interview site: Boston MA. Send this ad and two (2) copies of your resume to: Case # 200204575 Division of Career Services, Labor Certification Unit, 19 Staniford Street, 1st. Fl. Boston, MA 02114.

DynPro, Inc., a leading IT Consulting firm headquartered in Durham, NC, is seeking qualified computer professionals with:

* Websphere, Net.Commerce, Net.Data
* JAVA, JavaScript, RMI, Swing, ASP, HTML, XML
* CGI scripting-Perl, Shell, Korn
* C++, OOS, OOP, Visual Basic, visual C++
* SQL Server, DB2, Oracle, QMF
* Win NT and UNIX administration, AIX
* ABAP/4 programming
* SAP-SD, SM, MM, PP, PI, WM, QM, PM, FI-CO, HR, BIW, CRM Functional Consultants
* Lotus Notes, Crossworld
* JD Edwards Consulting and tools

All positions require MS/BS degree with 1 or 2 years of experience in the field and willingness to travel to client sites throughout the USA. Please e-mail resumes to:
mplueddemann@dynpro.com
EOE

Director, Managed Solutions Practice-Meet w/ reps. of prospective client to analyze client needs. Propose project & pricing, utilizing on-shore & offshore teams. Plan & manage project deadlines & budget. Act as liaison between client, on-site & offshore team. Responsible for successful implementation & customer satisfaction. Bachelor's degree or foreign equiv. Degree must be in Comp. Sci., Eng., Business or related field. Must have 2 yrs project management or related exp. The 2 yrs exp must include 1 yr project coordination/oversight for project requiring on-site & offshore teams. $79,278/yr, 40 hrs/wk. EEO/AAP/M/F/V/H Submit resumes to BECS/ CareerLink Program Supervisor, Indiana County CareerLink, 300 Indian Springs Rd, Indiana, PA 15701 Job Order No. WEB419603

Software Engineer-Develop, create, modify computer syst/apps software & specialized utility programs. Analyze & design databases within an application area. Analyze user needs & develop software solutions using Internet Applications & Internet Software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as a computer professional in lieu of Bachelors degree. Degree must be in CS/CA, Eng, Math, Chemistry, Physics, scientific/business related or social sci field. Must have 1 yr exp using HTML, Java, Oracle, Unix & Websphere. Extensive travel & frequent relocation required. $66,800/yr, 40 hrs/wk EEO/AAP/M/F/V/H Submit resumes to Site Manager, Armstrong County CareerLink, 1270 N Water St, PO Box 759, Kittanning, PA 16201-0759 Job Order No. 419589

Sr. Software Engineer to design, develop, test, implement and support web besed and client/server applications using .NET, Visual Besic, Internet Information Server, MS SQL Server, Oracle, ASP, JavaScript, VBScript on Unix and Windows Platform. Require: BS Degree in Science/Engineering or a closely related field with 5 years of progressively responsible experience in the Job offered or in the related occupation of Programmer/Analyst. Extensive travel on assignments to various client sites within the US is required. Competitive Salary offered. Apply by resume to : Revi Kandimalle, President, Everest Computers, Inc. 875 Old Roswell Lakes Road, Suite E 400 Roswell GA 30076. Attn: Job: KV

We Do A Better Job At Helping You Get One.

Search for jobs and post your resume on itcareers.com or call

(800) 762-2977

Want a new IT career?

Check out our jobs in the combined CareerJournal.com database.

www.itcareers.com

Computers

Arxan Technologies (San Francisco, CA), developer of software security products seeks Chief Software Architect. Must have MS in Comp.Sci or Comp. Eng and 5 years of related experience. Experience must include: 4 years exp w/R&D in advanced anti-tamper software (incl. code obfuscation and active defense tech); 3 years exp w/design & building advanced program analysis & instrumentation tools at binary level; 3 years exp w/ object/executable file formats (PE/COFF/ELF) and linker operations. Send resume to: arch-jobs@arxan.com. EOE

Systems Architect

DUTIES: This is a full-time position paying $88,000 per year. The System Architect develops, designs, and delivers technical systems that meet customer's requirements. Meets with clients to obtain their technical and business requirements. Develops and delivers the system architectural design document. Selects tools and technologies for system development and deployment. Manages the technical risks of the design. Produces plans for the completion of projects. Determines required skill sets based on design and tools. Designs and develops complex prototypes and system components. Presents and defends architectural design to clients and staff. Supervises technical team members. Communicates and resolves technical issues.

MINIMUM REQUIREMENTS: A B.S. in Computer Science, Math or Engineering (or foreign equivalent), plus 5 years of Software Engineering or Development experience.

A minimum of 5 years:
* MS Windows Client/Server Development Experience (with at least two years of experience with all of the following: Visual Basic; Java/J2EE; Powerbuilder; and C, or C#, or C++)
* Relational database experience (with at least three years of experience with all of the following: Oracle, Microsoft SQL Server, and DB2)
* UNIX experience (with at least one year of experience with all of the following: Solaris, AIX, Dynix/PTX, MP-RAS)

A minimum of 3 years:
* Web development experience including all of the following environments: HTML, Javascript, IIS, Apache, ASP, ASP.Net, and JSP
* XML technologies experience including all of the following environments: XML, XSL, XSLT, XPATH, JDOM, MSXML, and SAX
* Experience using MOM (Message Orientated Middleware), including both: MQ-Series and MSMQ
* Experience BEA Weblogic and IBM Websphere
* Object Orientated Analysis experience using UML

The following are also required:
* Knowledge of the Insurance Industry with proven experience building insurance solutions
* Experience in Internet consulting or technology solutions
* Experience in a technical leadership role

Applicants should submit two copies of their resumes to:
Jay Watson, Staffing Manager
Job Order #2004-002
P.O. Box 989
Concord, NH 03302-0989

You can find a better JOB with one hand tied behind your back.

Just point your mouse to the world's best IT careers site, powered by CareerJournal.com

Check us out at: www.itcareers.com or call (800) 762-2977

Software Engineers
Design, build, customize and monitor software systems upon evaluation of user needs. Related Bachelor's Degree required (or functional US equivalent) plus 2 yrs minimum experience in job offered or IT industry. Competitive Salary. Full Time Roving worksites throughout US. Mail resume to ECS, HR Department - 2875 NE 191 Street #701 Aventura, FL 33180.

Programmer/Analyst to analyze, design, develop, test and document computer Software programs for various business applications using Oracle, PL/SQL, Datastage, Erwin under Unix and Platform. Require: BS Degree in Science/Engineering or a closely related field with 2 years of relevant experience in the Job offered. Extensive travel on assignments to various client sites within the US is required. Competitive Salary offered. Apply by resume to : Ravi Kandimalla, President, Everest Computers, Inc. 875 Old Roswell Lakes Road, Suite E 400 Roswell GA 30076. Attn: Job: AG

Powerful Minds Attract

Looking for a career on the cutting edge of technology? This is the place. People here love their work because they get to think big and dream big. Combine your proven skills with our resources — and really take off.

Microsoft, Microsoft Business Solutions, and FRx have the following opportunities available:

- **Redmond, WA**
  Software Engineers, Program Managers, Support Engineers, Systems Analysts and Consultants, Business and Financial Analysts, Auditors and Accountants, Business Development Managers, Directors, Instructional Designers, Marketing Managers, Product Designers, Product Managers, Network Engineers, Technical Writers and Editors, Technology Specialists, Systems Engineers, HR Managers, and Software Localization Engineers.
- **Atlanta, GA**
  Support Engineers
- **Charlotte, NC**
  Software Engineers, Support Engineers
- **Denver, CO**
  Software Engineers – FRx Software
- **Fargo, ND**
  Software Engineers
- **Ft. Lauderdale, FL**
  LATAM MBS Practice Manager, Financial Services Manager, Program Managers, Business Marketing Officers LATAM, and Quality Assurance Managers.
- **Irving/Las Colinas, TX**
  Support Engineers, Support Professionals, Developer Support Engineers, Solution Integration Engineers, Escalation Engineers, Application Development Consultant, Technical Leads, Partner Technical Leads, and Consultants.
- **Malvern, PA**
  Financial Analyst, Marketing Manager
- **Mountain View, CA**
  Software Engineers, Web Design Engineers, Program Managers, Hardware/Electronic/Design Engineers
- **Reno, NV**
  Product Managers, Contract Management Revenue Analyst

To submit your resume, please visit our website at http://www.microsoft.com/careers or mail your resume to Microsoft Corporation, Attn: Microsoft Staffing – A41, One Microsoft Way, Redmond, WA 98052. Microsoft offers an excellent benefits package to full-time employees including medical, dental, vacation, employee stock purchase plan, and 401(k). All part of our commitment to our most important asset — our employees. Please visit our company website for more details.

microsoft.com/**careers**

©2004 Microsoft Corporation. All rights reserved. Microsoft is a registered trademark of the Microsoft Corporation in the United States and/or other countries. Microsoft is an equal opportunity employer and supports workplace diversity.

How to Contact COMPUTERWORLD

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

Maryfran Johnson,
editor in chief
(508) 820-8179

DEPARTMENT EDITORS

Don Tennant, News editor.....(508) 620-7714
Craig Stedman, assistant News editor.....(508) 820-8120
Mitch Betts, Features editor.....(301) 262-8243
Tommy Peterson, Technology editor.....(508) 620-7729
Kathleen Melymuka, Management editor.....(508) 820-8118

REPORTERS

Bob Brewin, mobile computing/wireless; Intel PCs and servers; health care.....(505) 425-3551
Matt Hamblen, networking; network systems management; e-commerce; CA.....(508) 820-8567
Thomas Hoffman, Information economics; IT investment and management issues; careers/labor.....(845) 988-9630
Lucas Mearian, financial services; storage; IT management.....(508) 820-8215
Linda Rosencrance, general assignment; transportation/carriers.....(508) 628-4734
Carol Sliwa, Microsoft; Web services technologies; application development; retail industry.....(508) 628-4731
Marc L. Songini, ERP; supply chain; CRM; databases; data warehousing; EAI.....(508) 820-8182
Patrick Thibodeau, enterprise systems; outsourcing and immigration issues; corporate antitrust issues.....(202) 333-2448
Dan Verton, federal/state government; legislation; critical-infrastructure security; travel.....(703) 321-2277
Jaikumar Vijayan, corporate security/privacy issues; manufacturing.....(630) 978-8390
Todd R. Weiss, general assignment; Linux; messaging/collaboration.....(717) 560-5255

OPINIONS

Jamie Eckle, Opinions editor.....(508) 820-8202
Frank Hayes, senior news columnist.....(503) 252-0100

FEATURES

Ellen Fanning, special projects editor.....(508) 820-8204
Robert L. Mitchell, senior editor.....(508) 820-8177
Mark Hall, editor at large.....(503) 391-1158
Gary H. Anthes, national correspondent.....(703) 536-9233
Julia King, national correspondent.....(610) 532-7599

COMPUTERWORLD.COM

Tom Monahan, online director.....(508) 820-8218
Sharon Machlis, managing editor/online.....(508) 820-8231
Ken Mingis, online news editor.....(508) 820-8545
Marian Prokop, online editor at large.....(508) 620-7717
David Ramel, e-mail newsletter/online editor at large.....(508) 820-8269
John R. Brillon, associate art director.....(508) 820-8216
David Waugh, associate art director.....(508) 820-8142
Peter Smith, Web development manager
Kevin Gerich, Mark Savery, Web developers
Bill Rigby, associate Web developer
Matthew Moring, graphics designer

RESEARCH

Marl Keefe, research manager
Gussie Wilson, research associate

COPY DESK

Michele Lee DeFilippo, managing editor/production.....(508) 820-8126
Bob Rawson, assistant managing editor/production.....(508) 271-8015
Mike Parent, Monica Sambataro, senior copy editors
Eugene Demaitre, copy editor

GRAPHIC DESION

Stephanie Faucher, design director.....(508) 820-8235
April O'Connor, associate art director
Julie Quinn, senior designer
Susan Cahill, graphics coordinator
John Klossner, cartoonist

ADMINISTRATIVE SUPPORT

Linda Gorgone, office manager.....(508) 820-8176
Cheryl Dudek, administrative assistant.....(508) 820- 8178

CONTRIBUTING COLUMNISTS

Pimm Fox, Michael Gartenberg, Dan Gillmor, Paul Glen, Barbara Gomolski, Thornton A. May, David Moschella, Bart Perkins, Nicholas Petreley, Paul A. Strassmann

CONTRIBUTINO WRITERS

Mary Brandel, Russell Kay, Sami Lais, Robert L. Scheier, Steve Ulfelder

GENERAL INFORMATION

TELEPHONE/FAX

Main phone number.... (508) 879-0700
All editors unless otherwise noted below
Main fax number..... (506) 875-8931
24-hour news tip line... (506) 620-7716

E-MAIL

Our Web address is **www.computerworld.com.**
Staff members' e-mail follows this form: **firstname_lastname@computerworld.com.**
For IDG News Service correspondents: **firstname_lastname@idg.com.**

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to: **letters@computerworld.com.**
Include your address and telephone number.

MAIL ADDRESS

PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701

SUBSCRIPTIONS/BACK ISSUES

Subscription rates: U.S., $99.99/year; Canada, $130/year; Central and South America, $250/year; all others, $295/year
Phone..... (888) 559-7327
E-mail..... cw@omeda.com
Back issues..... (506) 820-8167

REPRINTS/PERMISSIONS

Contact.....Renee Smith
Phone.....(717) 399-1900, ext. 172
E-mail.....reprints@computerworld.com
Visit **www.reprintbuyer.com** to obtain quotes and order reprints online.

COMPANIES IN THIS ISSUE

Page number refers to page on which story begins. Company names can also be searched at **www.computerworld.com.**

ACCENTURE LTD. 36, 40
ACXIOM CORP. 1
ADC SOFTWARE 30
ADVANCED MICRO DEVICES INC. 21, 25
AIR2WEB INC. 13
AKAMAI TECHNOLOGIES INC. 8
ALLIANCE DATA SYSTEMS INC. 7
ALLIED OFFICE PRODUCTS INC. 33
AMAZON.COM INC. 18
AMERICAN AIRLINES INC 24
AMERICAN BANKERS ASSOCIATION 12
AMERICAN DIGITAL SYSTEMS INC. 7
AMERICAN MANAGEMENT SYSTEMS INC. 1
AMR CORP. 24
ASCENTIAL SOFTWARE CORP. 40
BALANCED SCORECARD COLLABORATIVE INC. 14
BEA SYSTEMS INC. 14
BEARINGPOINT INC. 40
BENTLEY COLLEGE 26
BLACK DUCK SOFTWARE INC. 32
BLUE COAT SYSTEMS INC. 26
BOWATER INC. 7
BRITISH BROADCASTING COMPANY 30
BUREAU OF LABOR STATISTICS 40
CABLE NEWS NETWORK 30
CACI INTERNATIONAL INC. 1
CARTER CONSULTING INC. 6
CATALYST SYSTEMS CORP. 8
CE FRANKLIN LTD 1
CELESTIX NETWORKS INC. 16
CHECK POINT SOFTWARE TECHNOLOGIES LTD. 16
CHELA EDUCATION FINANCING 19
CHOICE MEDICAL SUPPLIES 26
CIO COUNCIL 6
CISCO SYSTEMS INC. 13, 14, 16
CITRIX SYSTEMS INC. 31
CLEARPATH NETWORKS INC. 8
COGNIZANT TECHNOLOGIES SOLUTIONS GROUP. 40
COMMONWEALTH HEALTH CORP. 8
COMPASS AMERICA INC. 33
COMPUTER ASSOCIATES INTERNATIONAL INC. 6, 7, 32
COMPUTER SCIENCES CORP. 18, 40
CONSULTING INFORMATION SERVICES LLC 38
CORNELL UNIVERSITY 12
CSC RESEARCH AND ADVISORY SERVICES 18
DEFENSE INFORMATION SYSTEMS AGENCY 49
DELL INC. 6, 13, 28, 32
DIAMONDCLUSTER INTERNATIONAL INC. 33
ECLIPSE FOUNDATION 6
ELECTRONIC DATA SYSTEMS CORP. 40, 50
ELECTRONIC FRONTIER FOUNDATION 29
EMC CORP. 6
FEDERAL SOURCES INC. 1
FEDEX CORP. 36
FIRETIDE INC. 13
FIRST DATA CORP. 36, 41
FLORIDA DEPARTMENT OF CHILDREN & FAMILIES 38
FORRESTER RESEARCH INC. 14
FORTINET INC. 31
GARTNER INC 15, 38
GOLDENGATE SOFTWARE INC. 21, 25
GOLDMAN SACHS GLOBAL INVESTMENT RESEARCH 40
GUERRA, KIVIAT, FLYZIK AND ASSOCIATES INC. 1
GUIDANT CORP. 7
HARRIS INTERACTIVE INC. 40
HEWITT ASSOCIATES LLC 1
HEWLETT-PACKARD CO. 6, 13, 16, 21, 24, 25
HITACHI DATA SYSTEMS CORP. 6
HOMELAND SECURITY COUNCIL 12
IBM 1, 6, 8, 14, 16, 21, 24, 36, 40
IDC 1, 6, 8
INFORMATION BUILDERS INC. 14
INFOSYS TECHNOLOGIES LTD. 40
INTEL CORP. 21, 32
INTERNET ENGINEERING TASK FORCE 30
J.P. MORGAN CHASE & CO. 36
JBOSS INC. 6, 7
JOHNSON & JOHNSON PHARMACEUTICAL RESEARCH & DEVELOPMENT LLC 1
KANSAS CITY CHIEFS 28
KEESAL, YOUNG & LOGAN 13
KENNEDY INFORMATION INC. 38
KEYCORP. 1
LINCOLN FINANCIAL GROUP 38
LOTUS SOFTWARE GROUP 18
LUCENT TECHNOLOGIES INC. 8
MACROVISION CORP. 8
MASTERCARD INTERNATIONAL INC. 14
MAYER, BROWN, ROWE & MAW LLP 33
MCAFEE SECURITY FOR CONSUMERS 31
MCDONALD'S CORP. 18
MCKINSEY & CO. 36
META GROUP INC. 12, 28, 40
METROPOLITAN PIER AND EXPOSITION AUTHORITY 33, 34
MICROSOFT CORP. 1, 6, 14, 15, 16, 30, 31
MINNESOTA LIFE INSURANCE CO. 38
MYSQL AB 6, 21, 25
NATIONAL IMAGERY AND MAPPING AGENCY 49
NATIONAL WORKRIGHTS INSTITUTE 29
NETSCAPE COMMUNICATIONS CORP. 30
NETWORK ASSOCIATES INC. 31
NETWORK ENGINES INC. 18
NEWSGATOR TECHNOLOGIES 30
NORTH AMERICAN INGRES USER ASSOCIATION 7
OHIO STATE UNIVERSITY 15
OHIO SUPERCOMPUTER CENTER 6
OPEN SOURCE DEVELOPMENT LABS INC. 16
ORACLE CORP. 1, 6, 8, 14, 31
OSHKOSH B'GOSH INC. 1
OTSUKA MARYLAND RESEARCH INSTITUTE INC. 15
PALMONE INC. 14, 18
PASSLOGIX INC. 14
PATCHLINK CORP. 31
PEOPLESOFT INC. 8, 14
PESTPATROL INC. 12
PIPER RUDNICK LLP 1
PITNEY BOWES INC. 13
PLONE FOUNDATION 7
PREMIER TECHNOLOGY GROUP INC. 1
PRIVACY RIGHTS CLEARINGHOUSE 29
PROJECT MANAGEMENT SOLUTIONS INC. 38
QUANOT ANALYTICS. 16
RADIOSHACK CORP. 1
RANCHERO SOFTWARE 30
RED HAT INC. 6, 25, 31
ROSETTANET 18
ROTHMAN CONSULTING GROUP INC. 36
SABRE HOLDINGS CORP. 21, 24, 25
SALLIE MAE INC. 15
SAP AG 8, 14
SHARED PET IMAGING LLC 13
SIEBEL SYSTEMS INC. 13
SOLSOFT INC. 31
SPECTORSOFT CORP. 28
STARBUCKS CORP. 16
SUMMIT CENTER 28
SUMMIT STRATEGIES INC. 7
SUN MICROSYSTEMS INC. 8
SUSE LINUX AG 31
TELICA INC. 8
TENNESSEE VALLEY AUTHORITY 1
TENNIS CORP. OF AMERICA 28
THE BOEING CO. 1
THE GUARDIAN LIFE INSURANCE COMPANY OF AMERICA 1
THE MOZILLA ORGANIZATION 30
THE NEW YORK TIMES CO. 30, 36
THE SCO GROUP INC. 16
THE WEATHER CHANNEL INTERACTIVE INC. 36
TIBCO SOFTWARE INC. 14
TRAVEL INC. 13
TRAVELOCITY.COM LP. 21
TRENO MICRO INC. 12
U.S. ARMY 1
U.S. DEPARTMENT OF AGRICULTURE 6
U.S. DEPARTMENT OF HOMELAND SECURITY 12, 13
U.S. DEPARTMENT OF JUSTICE 6
U.S. DEPARTMENT OF THE INTERIOR 1
U.S. DEPARTMENT OF THE TREASURY 6
U.S. GENERAL ACCOUNTING OFFICE 12
U.S. GENERAL SERVICES ADMINISTRATION 1
U.S. NAVY 33
U.S. POSTAL SERVICE 12, 14
U.S. SECURITIES AND EXCHANGE COMMISSION 6
UNIVERSITY OF ARKANSAS 40
USERLAND SOFTWARE INC. 30
VERICEPT CORP. 28
WAL-MART STORES INC. 18
WEBROOT SOFTWARE INC. 12
WEBSENSE INC. 26
WORKPLACE FAIRNESS 29
WORLD WIDE WEB CONSORTIUM 16
XEROX CORP. 14
YAHOO INC. 30
ZAPTHINK LLC 14
ZONE LABS INC. 12
ZOPE INC. 7

ADVERTISER'S INDEX

Cybernet Manufacturing 42
www.cybernetman.com
EMC 20*
www.emc.com
Harvard Business School Press ...37
www.HBSPress.org
Hewlett-Packard Server Solutions ..35
www.hp.com
IBM 26-27
www.ibm.com
Lawson 2-3
www.lawson.com
Microsoft Live 4
microsoft.com/livecomm/trial
Network Associates 52
www.nai.com
Nokia 22-23
www.nokia.com
Salary Survey 2004 39
www.computerworld.com/takesalary2004
Samsung 10-11
www.samsungusa.com
SAP 51-
www.sap.com
SBC 9
www.sbc.com
Sharp 16,17
www.sharpusa.com

*Regional Select Edition

The index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Continued from page 1

Army

Fairfax, Va.-based Premier Technology Group Inc. but was transferred to Arlington, Va.-based CACI International Inc. last year when that company acquired Premier Technology Group.

Frank Quimby, a spokesman for the Interior Department, said all existing delivery orders under the contract will be fulfilled. New requests for services under the pact, however, will be denied until a review is completed, he said.

"This is not a criminal investigation; it is a management review and audit to see if all of the rules and regulations were followed and whether this was an inappropriate contract vehicle to provide these [interrogation] services," he said.

According to Quimby, contracting officers are responsible for determining whether the services sought fit within the scope of work defined in the contract. "In this case, the contracting officer determined that the interrogators would be using the IT equipment provided by the contract by entering information into databases, analyzing the information collected using IT software and disseminating the intelligence to other military commands using the IT systems," he said.

Quimby added that existing rules set by the U.S. General Services Administration justify the contracting officer's use of the IT contract for the interrogator services. However, he acknowledged that there are "obvious questions about the processes, contract and decisions that were made."

'Cutting Corners'

So far, 81 orders have been issued under the contract, totaling $132 million. However, only 11 of those orders involve work being performed in Iraq, and they cover a wide variety of services. Only three of those 11 Iraq-related orders have dealt specifically with interrogation or intelligence work, and only two deal with intelligence personnel at the Abu Ghraib prison.

Robert Nichols, an attorney at Piper Rudnick LLP in Washington and a member of the law firm's homeland security practice and Iraq reconstruction task force, said federal IT contracts often provide a lot of latitude in defining the scope of work. In addition, there have been widespread instances where the government has gone beyond the scope of work to include non-IT-related services in IT contracts, he said. "In the context of Iraq, there's such a hurry to get things done that there is a lot of cutting corners taking place," said Nichols.

Ray Bjorklund, senior vice president and chief knowledge officer at Federal Sources Inc. in McLean, Va., said any kind of contract can be abused. However, in wartime, it sometimes makes sense to interpret the rules broadly about how contracts can be used, he said. "IT services can be extended into professional services, and professional services can be extended into interrogation and intelligence services," Bjorklund said.

Liberal interpretations of the scope of work under a contract may also stem from the fact that as companies such as CACI grow, the types of services they're able to provide become more diverse, Nichols said. A string of recent acquisitions has blurred CACI's role as purely an IT company, he said.

For example, in addition to its acquisition of Premier Technology Group, CACI acquired the defense and intelligence unit of Fairfax, Va.-based American Management Systems Inc. in May as part of a broader corporate push into the defense and intelligence market for IT services.

"The downside is that when many federal IT contracts were originally awarded, they were awarded for IT-specific reasons," said Nichols.

Phil Kiviat, a partner at Guerra, Kiviat, Flyzik and Associates Inc., an Oak Hill, Va.-based federal contract consulting firm, said it would be unfair to use this incident to judge the entire federal procurement system.

"More management review and discipline would keep abuses from happening," he said, "but [that requires] time and money, neither of which are in long supply." **47209**

IT Contract Abuse Is Nothing New

The Pentagon's inspector general has documented a long history of IT contract mismanagement and misuse. In a report issued last October, the IG found that 98 out of 113 contracts valued at $17.8 billion failed to use historical information to define requirements, resulted in questionable sole-source awards, relied on inadequate data to determine price reasonableness, and were not subject to adequate oversight.

In another audit conducted in June 2003, the IG discovered that at the National Imagery and Mapping Agency, 85 out of 86 contract actions totaling $247 million had serious problems, including missing or inadequate justifications. And as far back as 1995, the IG discovered that the Defense Information Systems Agency, the Pentagon's network provider, improperly used an IT contract valued at $200 million, resulting in excessive prices, windfall profits for contractors and circumvention of competition.

– Dan Verton

Continued from page 1

Grid

using grid technology to manage resources across 4,000 mostly commodity-based servers and to gain processing speed. Acxiom processes about 45 billion records each month.

"Can we get out from under software vendors' powers?" Bennett asked, "Can we make a truly scalable infrastructure where we are not at the whim of a software vendor?"

Bennett said that most of the software on Acxiom's grid is either applications built in-house or open-source software. The company has about 300 developers.

While grid computing is gradually expanding into the mainstream enterprise, it's still mostly used for technical, compute-intensive applications, conference attendees said. And since smaller niche vendors often write applications for these systems, it's not unusual for licensing issues to arise.

"Because the vendors that we work with are small, it's very difficult to convince them that they should change their licensing practices," said Jeffrey Mathers, director of the research and innovation group at Johnson & Johnson Pharmaceutical Research & Development LLC in Raritan, N.J.

Large vendors such as IBM and Sun Microsystems Inc. are developing licensing models that can be adapted to the grid environment. But many vendors are only beginning to come to terms with grid licensing.

Albert Bunshaft, vice president of grid computing sales and business development at IBM, said grid licensing is an "unresolved problem." But he said he's seeing a lot of interest among applications vendors to work with IBM and users to adopt flexible terms.

DAN KABERON made his grid a "co-processor" to his IBM mainframe.

Shahin Khan, vice president of Sun's high-performance technical computing business unit, said grid software licensing is "all over the map." But Sun's per-employee licensing adapts well to a grid environment, Kahn said.

Dan Kusnetzky, an analyst at research firm IDC, said software vendors will have to adapt to the grid environment or risk losing users to open-source. "It's clear that licensing and business rules are going to have to be much more flexible" to deal with dynamic environments, he said.

Some users say grid computing is worth whatever licensing problems companies may face. Mathers noted that when Johnson & Johnson was studying molecules used in drug development using computer simulations on a 32-way server, the processing time took about three months. After moving those simulations to a grid, processing time was cut to about two weeks.

Dan Kaberon, director of computer resource management at benefits outsourcer Hewitt Associates LLC in Lincolnshire, Ill., said he's able to use IBM's Smalltalk object-oriented programming language on a grid without a per-node charge, unlike with some other options he looked at.

Hewitt moved its pension calculations off an IBM mainframe to a grid, making the grid, in effect, a "co-processor" to the mainframe, Kaberon said. **47211**

Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement #40063800. CANADIAN POSTMASTER: Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published weekly; except a single combined issue for the last two weeks in December by Computerworld, Inc., 500 Old Connecticut Path, Box 9171, Framingham, Mass. 01701-9171. Copyright 2004 by Computerworld Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus 50 cents per page, is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 100 copies) and permission to reprint may be purchased from Renee Smith, Computerworld Reprints, c/o Reprint Management Services, Greenfield Corporate Center, 1808 Colonial Village Lane, Lancaster, Pa., 17601, (717) 399-1900, Ext. 172. Fax: (717) 399-8900. Web site: www.reprintbuyer.com. E-mail: reprints@computerworld.com. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $5 per copy; U.S. – $99.99 per year; Canada – $130 per year; Central & So. America $250 per year; Europe – $295 per year; all other countries – $295 per year. Subscriptions call toll-free (888) 559-7327. POSTMASTER: Send Form 3579 (Change of Address) to Computerworld, PO Box 3500, Northbrook, Ill. 60065-3500.

BPA ABM RED TAG

FRANK HAYES ■ FRANKLY SPEAKING

Not Just Semantics

HOW SOON WILL WE START seeing pilot projects implementing Data Center Markup Language, the proposed standard for automating data center management? This year, that's how soon. Last week, the first draft of DCML specs were unveiled. And now Electronic Data Systems, one of DCML's biggest backers, says it will be doing real pilots with end users within months.

That's good news for two reasons. First, with EDS racing to get DCML working for data center management, we won't have to wait around for years until vendors someday sign up. DCML is being driven by people who actually run data centers. It'll be pragmatic, IT-shop-focused — and real sooner instead of later.

And second, a fast-tracked DCML will give IT shops a taste of the Semantic Web inside our own glass walls before we have to deal with it in the outside world.

Remember what DCML will do. Right now, if you want to bring a new server online, you have to make configuration changes, set up monitoring and do lots of other adjusting. Your procedures for doing those things may be well defined or ad hoc, but they're almost always performed manually. That makes mistakes easier.

DCML promises to turn those procedures into sets of XML-encoded documents that pass the necessary information around your data center — information about your procedures, the new equipment and your existing data center environment. DCML will automate data center processes and — if it works — make them faster and more reliable.

The hard part is getting it working — and it's nice to have EDS to do a lot of the proof-of-concept heavy lifting.

Besides DCML making data center management more efficient, IT shops will get an extra benefit. DCML uses some of the same concepts and technologies as the Semantic Web. That's World Wide Web inventor Tim Berners-Lee's vision of the next generation of the Web. And IT shops really need to understand the Semantic Web soon — before it breaks big into the mainstream.

What is the Semantic Web? In simple terms, the Semantic Web makes it much easier for machines to harvest the information that's currently embedded in the text of Web pages.

For example, today it takes either a human brain or complex machine intelligence to figure out from a toy store's Web site that a Happy Birthday Barbie doll costs $16.99, while a Swan Lake Barbie costs $19.99 and the Swan Lake Barbie Gift Set costs $44.99. The data's all there, but it's set up for people to read, not search engines or other applications.

But tagging the data with Semantic Web technologies will make it easy for a search program to make sense of the information. Semantic Web boosters say users will eventually be able to compare and buy products, coordinate schedules, juggle travel plans, collect information and do lots of other data-intensive tasks — all automatically.

See why you need to understand it? The Semantic Web could have a huge impact on how your company does business, but it's an order of magnitude more complex than the original Web. So if DCML can serve as a dry run for the Semantic Web and improve your data center operations at the same time, it's easy to see why we want DCML to go live as soon as possible.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

And definitely before your CEO reads about the Semantic Web and wants to know your IT shop's plan for implementing it.

So cheer on EDS in its sprint to make DCML a working reality. And cross your fingers and hope the Semantic Web doesn't pick up momentum anytime soon.

No, DCML and the Semantic Web aren't competing with each other. But they're still in a race. And we'll all be more likely to win if DCML crosses the finish line first. 47166

Unclear on the Concept

Hundreds of PCs on this large factory floor run the same graphical application day after day, and the monitors are showing signs of burn-in from continuously displaying the same image. Tech-support pilot fish pulls one of the monitors to show to manager as an example. "That looks pretty bad," manager says. "Can you make a screen capture of that so I can send it to the other managers?"

SHARK TANK

Pragmatist

User gets an error message on a report and calls IT pilot fish for help. But fish can't get access to the file – he's not authorized to view the report because it contains confidential data. Still, he *can* easily reproduce the report and the error – and he does. "It's because I still have full access to all the files used to create the report," he sighs. "Now when I get a call, I just know it will take me a little longer to actually see what the user is talking about."

Optimist

"You locked me out of my account," irritated user complains to help desk pilot fish. "Why did you lock me out? What did I do?" Your account is automatically locked out after the third unsuccessful attempt to log in, fish says while resetting the account. You *do* know that, right? Silence. User: "It works now. Will I have this problem tomorrow?" Fish: "I hope not."

Theorist

Only six keycards open this server room door, but there's also a keypad for emergencies – and since the keypad code hasn't been changed in years, the entire engineering staff knows it. When things start to go missing from the server room, pilot fish suggests giving everyone keycards, so at least their entry will be logged. "No," says the chief engineer, "they shouldn't have access to that room." But they know the keypad code – they have access right now, fish says. "They have the code for emergencies," says the chief. "They shouldn't have access to the room at any other time."

Realist

Pilot fish is taking a networking course at a local college, and because a new classroom needs to be wired for a network, he and a fellow student get the assignment of plugging cable into the patch panel. "We're terminating the wires for about an hour," says fish, "and the other guy says, 'Hmm, I hope this is all done right.' I ask him why and he tells me, 'I'm colorblind; I can't tell the difference between some of these colors.' So I spend the next hour checking all the wires and reterminating them into the patch panel."

PLUG INTO SHARKY'S POOL. Send your true tale of IT life to **sharky@computerworld.com**. You snag a snazzy Shark shirt if I use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky**.

COMPANIES THAT THOUGHT THEY COULDN'T AFFORD SAP RUN SAP.

©2004 SAP AG SAP and the SAP logo are trademarks and registered trademarks of SAP AG in Germany and several other countries.

You don't have to be big to think big. Or to run SAP.® With a variety of solutions for small and midsize businesses, SAP is an affordable choice for growing companies. Working with partners experienced in your industry, SAP can deliver scalable solutions to make your business run more efficiently. And do it faster than you ever thought possible. Visit sap.com/value or call 800 880 1727 to see big ideas for your company.

McAfee® SECURITY

i want to **stop** focusing on what's attacking my servers,

and **start** focusing on attacking new markets.

Start expanding securely with Intrusion Prevention Solutions from McAfee Security.

By combining System Protection and Network Protection Solutions, the McAfee® Security Protection-in-Depth™ strategy secures your business from the desktop, to the network, to the server—the mission-critical heart of your IT infrastructure. Add our Intrusion Prevention technologies and you can start preventing known and unknown threats rather than merely detecting them. Which means you can think a little less about security, and more about securing new markets. Start today at start.mcafeesecurity.com

Because security is not just about what you can stop.

McAfee and Protection in Depth are registered trademarks or trademarks of Network Associates, Inc. and/or its affiliates in the US and/or other countries. All other registered and unregistered trademarks herein are the sole property of their respective owners.

Network Associates